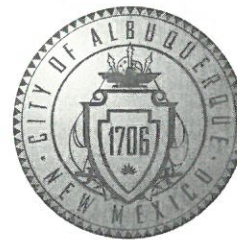


CITY OF ALBUQUERQUE



February 14, 2017

Richard J. Berry, Mayor

Joel Hernandez, P.E.
Tierra West, LLC
5571 Midway Park Place, NE
Albuquerque, NM, 87109

RE: **U-Haul at West Bluff**
Atrisco Drive NW
Grading Plan (Stamp Date 1/30/17) and Drainage Report (Stamp Date 12/5/16)
Hydrology File: H11D059

Dear Mr. Hernandez:

Based upon the information provided in your submittal received on 2/1/17, the Grading Plan and Drainage Report are approved for Building Permit and Grading Permit.

PO Box 1293

Work within the City Right-of-Way to install the manholes will require a city work order. If you have any questions, please contact me at 924-3695 or dpeterson@cabq.gov.

Albuquerque

Sincerely,

New Mexico 87103

Dana Peterson, P.E.
Senior Engineer, Planning Dept.
Development Review Services

www.cabq.gov

Orig: Drainage file



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: _____ **Building Permit #:** _____ **City Drainage #:** _____

DRB#: _____ **EPC#:** _____ **Work Order#:** _____

Legal Description: _____

City Address: _____

Engineering Firm: _____ **Contact:** _____

Address: _____

Phone#: _____ **Fax#:** _____ **E-mail:** _____

Owner: _____ **Contact:** _____

Address: _____

Phone#: _____ **Fax#:** _____ **E-mail:** _____

Architect: _____ **Contact:** _____

Address: _____

Phone#: _____ **Fax#:** _____ **E-mail:** _____

Other Contact: _____ **Contact:** _____

Address: _____

Phone#: _____ **Fax#:** _____ **E-mail:** _____

Check all that Apply:

DEPARTMENT:

- ☐ HYDROLOGY/ DRAINAGE
☐ TRAFFIC/ TRANSPORTATION
☐ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

- ☐ ENGINEER/ ARCHITECT CERTIFICATION
- ☐ CONCEPTUAL G & D PLAN
☐ GRADING PLAN
☐ DRAINAGE MASTER PLAN
☐ DRAINAGE REPORT
☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ TRAFFIC IMPACT STUDY (TIS)
☐ EROSION & SEDIMENT CONTROL PLAN (ESC)
- ☐ OTHER (SPECIFY) _____

CHECK 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
- ☐ PRE-DESIGN MEETING
☐ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: ☐ Yes ☐ No

DATE SUBMITTED: _____ **By:** _____

COA STAFF: _____ ELECTRONIC SUBMITTAL RECEIVED: _____



TIERRA WEST, LLC



February 1, 2017

Mr. Dana Peterson, P.E.
Planning Department- Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: U-Haul at West Bluff Grading & Drainage (File: H11D059)

Please find the following responses addressing staff comments from correspondence dated January 17, 2017 listed below:

1. The North detention pond appears to be bounded by a CMU retaining wall as high as 8 feet in some places. This will need to be enclosed with a fence at least 42 inches high.

Response: We have updated the plan (Sheet GR-1) to include a pedestrian barrier/fence.

2. Call out Class IV RCP for the north detention pond outfall pipe under the retaining wall.

Response: We have revised the plan (Sheet GR-1) to specify Class IV RCP for this section of pipe.

3. Additional detail is required for the two curb cuts and their associated water blocks to ensure ADA compliance for pedestrian traffic along Atrisco. Provide section views at these locations, including flow line elevation, slope, and waterblock elevations.

Response: We have revised the grading plan to show proposed grades for the waterblock and pedestrian paths in greater detail on Sheet GR-2, as requested.

4. Project Benchmark and Vertical Datum is missing from the sheets. The Drainage Management Plan addresses the NGVD29 to NAVD88 shift, but sheets need this information as well.

Response: We have updated the plan (Sheet GR-1) with a benchmark elevation in NAVD88.

5. A portion of the sidewalk is within the parcel property, if there is no existing sidewalk easement, one will need to be provided.

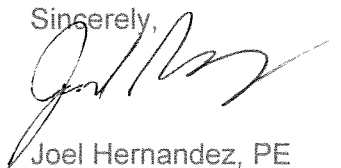
Response: Additional right of way for public sidewalk was dedicated to the City of Albuquerque by plat (recorded 10/28/2016) for the portions of sidewalk formerly beyond the public ROW. A copy of the plat is attached for reference.

6. Verify that the two drop inlets are capable of handling twice the 100-yr flow at the sump on Atrisco. It appears this location has a single-C and double-C on each side of the road. If these inlets are insufficient, additional inlets will be needed on the new lateral from the north pond to prevent flows from spilling over into the north pond.

Response: We have analyzed the capacity of the drop inlets considering a 50% clogging factor and determined sufficient capacity exists with the existing infrastructure. Additionally, the grading scheme allows for positive overflow so as to maintain the proposed structures above any potential localized flooding should the storm drain system become clogged. The FlowMaster calculation worksheet attached will be included in Appendix B of the report.

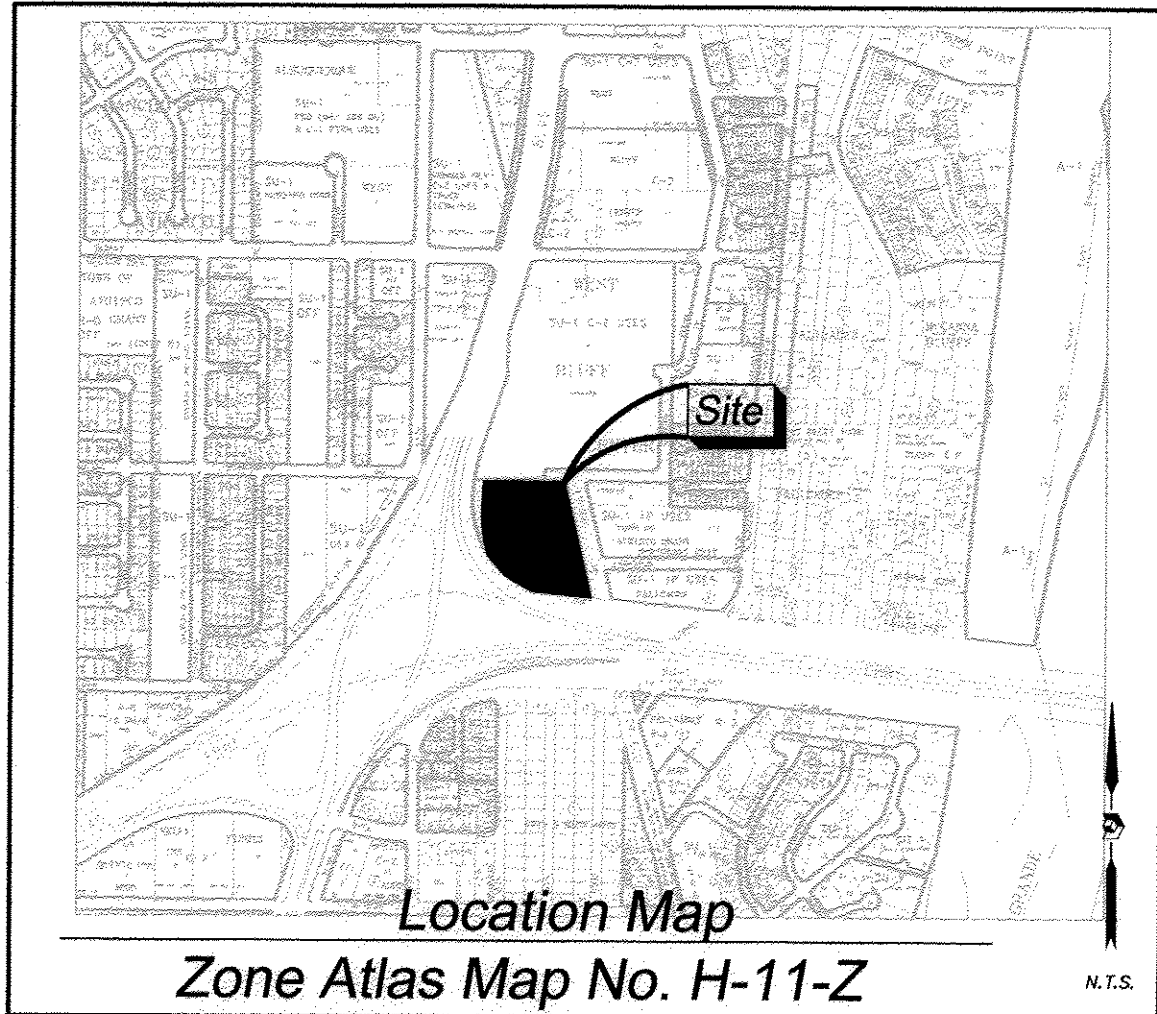
If you have any questions or need additional information regarding this matter, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Joel Hernandez', is written over the word 'Sincerely,'.

Joel Hernandez, PE

JN: 2016061
RRB/jh/jg



Subdivision Data:

ZONING:
GROSS SUBDIVISION ACREAGE: 5.4056 ACRES±
ZONE ATLAS INDEX NO: H-11-Z
NO. OF TRACTS CREATED: 1
NO. OF LOTS CREATED: 0
MILES OF FULL-WIDTH STREETS CREATED: 0
DATE OF SURVEY: 09/22/2016

Purpose of Plat

THE PURPOSE OF THIS PLAT IS TO CONSOLIDATE FOUR EXISTING TRACTS INTO ONE NEW TRACT

Notes:

- BEARINGS SHOWN ARE GRID BEARINGS (NEW MEXICO STATE PLANE CENTRAL ZONE - NAD 1983).
- ALL DISTANCES ARE GROUND DISTANCES-US SURVEY FOOT.
- THIS PROPERTY LIES WITHIN THE TOWN OF ATRISCO GRANT, PROJECTED SECTION 11, TOWNSHIP 10 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO.
- PLAT SHOWS ALL EASEMENTS OF RECORD.
- EASEMENT BEARINGS AND DISTANCES SHOWN HEREON ARE RECORD AND EASEMENTS HAVE BEEN ROTATED TO MATCH BASIS OF BEARINGS AND BOUNDARY UNLESS OTHERWISE INDICATED.

Public Utility Easements

PUBLIC UTILITY EASEMENTS SHOWN ON THIS PLAT ARE GRANTED FOR THE COMMON JOINT USE OF:

A. PUBLIC SERVICE COMPANY OF NEW MEXICO ("PNM"), A NEW MEXICO CORPORATION, (PNM ELECTRIC) FOR INSTALLATION, MAINTENANCE AND SERVICE OF OVERHEAD AND UNDERGROUND ELECTRICAL LINES, TRANSFORMERS, AND OTHER EQUIPMENT AND RELATED FACILITIES REASONABLY NECESSARY TO PROVIDE ELECTRICAL SERVICES.

B. NEW MEXICO GAS COMPANY FOR INSTALLATION, MAINTENANCE, AND SERVICE OF NATURAL GAS LINES, VALVES AND OTHER EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE NATURAL GAS SERVICES.

C. QWEST CORPORATION D/B/A CENTURYLINK QC FOR THE INSTALLATION, MAINTENANCE, AND SERVICE OF SUCH LINES, CABLE, AND OTHER RELATED EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE COMMUNICATION SERVICES.

D. CABLE TV FOR THE INSTALLATION, MAINTENANCE, AND SERVICE OF SUCH LINES, CABLE, AND OTHER RELATED EQUIPMENT AND FACILITIES REASONABLY NECESSARY TO PROVIDE CABLE SERVICES.

INCLUDED IS THE RIGHT TO BUILD, REBUILD, CONSTRUCT, RECONSTRUCT, LOCATE, RELOCATE WITHIN THE EASEMENT CHANGE, REMOVE, REPLACE, MODIFY, RENEW, OPERATE AND MAINTAIN FACILITIES FOR PURPOSES DESCRIBED ABOVE, TOGETHER WITH FREE ACCESS TO, FROM AND OVER SAID EASEMENTS, WITH THE RIGHT AND PRIVILEGE OF GOING UPON, OVER AND ACROSS ADJOINING LANDS OF GRANTOR FOR THE PURPOSES SET FORTH HEREIN AND WITH THE RIGHT TO UTILIZE THE RIGHT OF WAY AND EASEMENT TO EXTEND SERVICES TO CUSTOMERS OF GRANTEE, INCLUDING SUFFICIENT WORKING AREA SPACE FOR ELECTRIC TRANSFORMERS, WITH THE RIGHT AND PRIVILEGE TO TRIM AND REMOVE TREES, SHRUBS OR BUSHES WHICH INTERFERE WITH THE PURPOSES SET FORTH HEREIN. NO BUILDING, SIGN, POOL (ABOVEGROUND OR SUBSURFACE), HOT TUB, CONCRETE OR WOOD POOL DECKING, OR OTHER STRUCTURE SHALL BE ERRECTED OR CONSTRUCTED ON SAID EASEMENTS, NOR SHALL WELL BE DRILLED OR OPERATED THEREON. PROPERTY OWNERS SHALL BE SOLELY RESPONSIBLE FOR CORRECTING ANY VIOLATIONS OF NATIONAL ELECTRICAL SAFETY CODE BY CONSTRUCTION OF POOLS, DECKING, OR ANY STRUCTURES ADJACENT TO OR NEAR EASEMENTS SHOWN ON PLAT.

EASEMENTS FOR ELECTRIC TRANSFORMER/SWITCHEARS, AS INSTALLED, SHALL EXTEND TEN (10) FEET IN FRONT OF TRANSFORMER/SWITCHEAR DOORS AND FIVE (5) FEET ON EACH SIDE.

Disclaimer

IN APPROVING THIS PLAT, PUBLIC SERVICE COMPANY OF NEW MEXICO (PNM), QWEST CORPORATION D/B/A CENTURYLINK QC AND NEW MEXICO GAS COMPANY (NMGC) DID NOT CONDUCT A TITLE SEARCH OF THE PROPERTIES SHOWN HEREON. CONSEQUENTLY, PNM, QWEST CORPORATION D/B/A CENTURYLINK QC AND NMGC DO NOT WAIVE OR RELEASE ANY EASEMENT OR EASEMENT RIGHTS WHICH HAVE BEEN GRANTED BY PRIOR PLAT, REPLAT OR OTHER DOCUMENT AND WHICH ARE NOT SHOWN SPECIFICALLY DESCRIBED AND ON THIS PLAT.

COORDINATE AND DIMENSION INFORMATION

STATE PLANE ZONE:	GRID/GROUND COORDINATES:	TYPE:
NM-C	GROUND	STANDARD
HORIZONTAL DATUM: NAD83	VERTICAL DATUM: NAVD88	ROTATION ANGLE: 0° 00' 00.00" YES
CONTROL USED: ALBUQUERQUE GEODETIC REFERENCE SYSTEM	BASE POINT FOR SCALING AND/OR ROTATION: N = 0.0000 E = 0.000,000.0000	
COMBINED SCALE FACTOR:	DISTANCE ANNOTATION: GROUND	ELEVATION TRANSLATION: ±0.00'
GRID TO GROUND: 1.0003199193	BEARING ANNOTATION: GRID	ELEVATIONS VALID: YES
GROUND TO GRID: 0.999680183		

Legal Description

A TRACT OF LAND LYING AND SITUATE WITHIN THE TOWN OF ATRISCO GRANT, PROJECTED SECTION 11, TOWNSHIP 10 NORTH, RANGE 2 EAST, N.M.P.M., COMPRISING OF THE REMAINING PORTIONS OF TRACTS 303, 304, 305 AND 306 IN UNIT EIGHT OF A PORTION OF TRACTS ALLOTTED FROM THE TOWN OF ATRISCO GRANT, BERNALILLO COUNTY, NEW MEXICO, AS THE SAME ARE SHOWN AND DESIGNATED ON THE MAP OF SAID TRACTS FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO, ON DECEMBER 5, 1944 IN MAP BOOK D, FOLIO 117, LESS AND EXCEPTING THOSE PORTIONS TAKEN FOR RIGHT OF WAY UNDER NEW MEXICO PROJECT NO. TPU-040-3(89)155, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF THE PARCEL HEREIN DESCRIBED, A POINT ON THE INTERSECTION OF THE WESTERLY RIGHT-OF-WAY LINE OF ATRISCO DRIVE N.W. AND THE SOUTHERLY RIGHT-OF-WAY LINE OF MIAMI ROAD N.W., MARKED BY A FOUND CHISELED "X"; WHENCE A TIE TO ACS MONUMENT "12-H11" BEARS N 01°02'31" E, A DISTANCE OF 2137.74 FEET;

THENCE S 13°55'04" E, A DISTANCE OF 598.36 FEET ALONG THE WESTERLY RIGHT-OF-WAY LINE OF ATRISCO DRIVE N.W. TO THE SOUTHWEST CORNER OF THE PARCEL HEREIN DESCRIBED AND A POINT ON THE NORTHERLY RIGHT-OF-WAY LINE OF NEW MEXICO INTERSTATE 40, MARKED BY A SET NO. 4 REBAR WITH YELLOW PLASTIC CAP "PS 11993";

THENCE N 83°59'17" W, A DISTANCE OF 324.12 FEET ALONG THE NORTHERLY RIGHT-OF-WAY LINE OF NEW MEXICO INTERSTATE 40 TO A POINT NON-TANGENT CURVATURE, MARKED BY A SET NO. 4 REBAR WITH YELLOW PLASTIC CAP "PS 11993";

THENCE CONTINUING ALONG SAID NORTHERLY RIGHT-OF-WAY LINE, ALONG A NON-TANGENT CURVE TO THE RIGHT, HAVING A RADIUS OF 1045.92 FEET, AN ARC LENGTH OF 54.65 FEET, A DELTA ANGLE OF 02°59'37", A CHORD BEARING OF N 62°54'02" W, AND A CHORD LENGTH OF 54.64 FEET TO A POINT OF TANGENCY, MARKED BY A SET NO. 4 REBAR WITH YELLOW PLASTIC CAP "PS 11993";

THENCE CONTINUING ALONG SAID NORTHERLY RIGHT-OF-WAY LINE, ALONG A COMPOUND CURVE TO THE RIGHT, HAVING A RADIUS OF 472.96 FEET, AN ARC LENGTH OF 197.39 FEET, A DELTA ANGLE OF 23°54'43", A CHORD BEARING OF N 49°23'36" W, AND A CHORD LENGTH OF 195.96 FEET, TO THE SOUTHWEST CORNER OF DESCRIBED TRACT, MARKED BY A SET NO. 4 REBAR WITH YELLOW PLASTIC CAP "PS 11993";

THENCE, LEAVING SAID NORTHERLY RIGHT-OF-WAY LINE N 00°21'00" E, A DISTANCE OF 397.00 FEET TO THE NORTHWEST CORNER LYING ON THE SOUTHERLY RIGHT-OF-WAY LINE OF MIAMI ROAD N.W. MARKED BY A FOUND NO. 4 REBAR WITH TAG "17320";

THENCE, S 89°36'18" E, A DISTANCE OF 373.41 FEET ALONG THE SOUTHERLY RIGHT-OF-WAY LINE OF MIAMI ROAD N.W. TO THE NORTHEAST CORNER AND THE POINT OF BEGINNING, CONTAINING 5.4056 ACRES (235,466 SQ FT) NOW COMPRISING OF TRACT 306-A, UNIT 8, TOWN OF ATRISCO GRANT.

INDEXING INFORMATION FOR COUNTY CLERK	
OWNER	WEST BLUFF CENTER LLC
SECTION 11, TOWNSHIP 10 N, RANGE 02 E,	
SUBDIVISION	TOWN OF ATRISCO BLUFF BUSINESS CENTER
UPC NO TRACT 306	101105922524031701
UPC NO TRACT 305	101105923923631702
UPC NO TRACT 304	101105925823031703
UPC NO TRACT 303	101105927120931704

Solar Note:

NO PROPERTY WITHIN THE AREA OF REQUESTED FINAL ACTION SHALL AT ANY TIME BE SUBJECT TO A DEED RESTRICTION, COVENANT, OR BINDING AGREEMENT PROHIBITING SOLAR COLLECTORS FROM BEING INSTALLED ON BUILDINGS OR ERECTED ON THE LOTS OF PARCELS WITHIN THE AREA OF THIS PLAT.

Free Consent and Dedication

THE REPLAT SHOWN HEREON IS WITH THE FREE CONSENT AND IN ACCORDANCE WITH THE DESIRES OF THE UNDERSIGNED OWNER. EXISTING PUBLIC UTILITY EASEMENTS SHOWN HEREON FOR THE COMMON AND JOINT USE OF GAS, ELECTRICAL POWER AND COMMUNICATION SERVICES FOR BURIED AND/OR OVERHEAD DISTRIBUTION LINES, CONDUITS, AND PIPES FOR UNDERGROUND UTILITIES WHERE SHOWN OR INDICATED, AND INCLUDING THE RIGHT OF INGRESS AND EGRESS FOR CONSTRUCTION AND MAINTENANCE, AND THE RIGHT TO TRIM INTERFERING TREES AND SHRUBS. SAID OWNER DOES HEREBY CERTIFY THAT THIS SUBDIVISION IS THEIR FREE ACT AND DEED. SAID OWNERS WARRANT THAT THEY HOLD AMONG THEM COMPLETE AND INDEFEASIBLE TITLE IN FEE SIMPLE TO THE LAND SUBDIVIDED.

SAID OWNER DOES HEREBY GRANT ALL EASEMENTS AS SHOWN HEREON WITH LISTED BENEFICIARIES AND STIPULATIONS.

SAID OWNER DOES HEREBY DEDICATE ALL STREETS AND PUBLIC RIGHTS OF WAY SHOWN HEREON TO THE CITY OF ALBUQUERQUE IN FEE SIMPLE WITH WARRANTY COVENANTS.

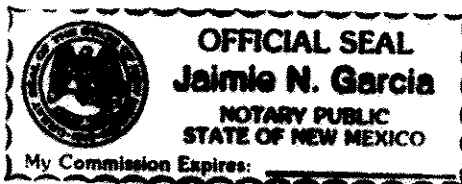
Paul Silverman
10-3-2016
DATE
PAUL SILVERMAN,
MANAGING MEMBER,
WEST BLUFF LLC.

Acknowledgment

STATE OF NEW MEXICO)
COUNTY OF BERNALILLO) SS

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME THIS 3rd DAY OF October 2016 BY
PAUL SILVERMAN, MANAGING MEMBER, WEST BLUFF LLC.

By Jaime N. Garcia MY COMMISSION EXPIRES: 3-22-2017
NOTARY PUBLIC



Plat of
Tract 306-A
Town of Atrisco Unit 8
Town of Atrisco Grant Projected Section 11,
Township 10 North, Range 02 East, N.M.P.M.
Albuquerque, Bernalillo County, New Mexico
September 2016

Project No. 1002717

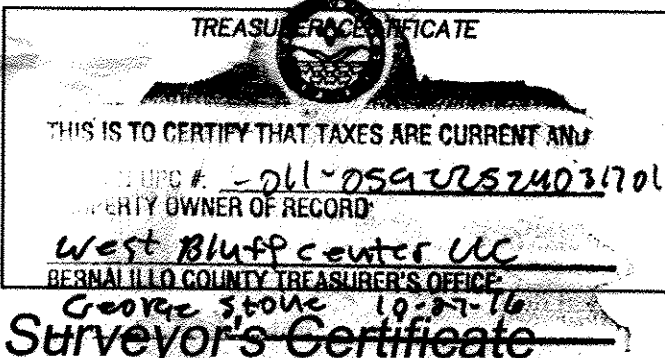
Application No. 16DRB-10351

Utility Approvals

Fernando Vigil DATE 10-19-16
PNM DATE 10-15-16
NEW MEXICO GAS COMPANY DATE 10/11/2016
QWEST CORPORATION D/B/A CENTURYLINK QC DATE 10/12/16
COMCAST

City Approvals

Don N. Risenover P.S. 10/3/16
CITY SURVEYOR DATE
Traffic Engineering, Transportation Department DATE 10/26/16
Tom Grove DATE 10-12-16
A.B.C.W.U.A. DATE
Carol S. Durnont DATE 10-12-16
PARKS AND RECREATION DEPARTMENT DATE
10-12-16
AMAFCA DATE
10-12-16
CITY ENGINEER DATE 10-27-16
DRB CHAIRPERSON, PLANNING DEPARTMENT



LARRY W. MEDRANO, A REGISTERED NEW MEXICO PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF NEW MEXICO, HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY MEETING THE MINIMUM REQUIREMENTS FOR MONUMENTATION AND SURVEYS OF THE CITY OF ALBUQUERQUE SUBDIVISION ORDINANCE AND OF THE MINIMUM STANDARDS FOR LAND SURVEYS AS ADOPTED BY THE N.M. BOARD OF LICENSURE FOR ENGINEERS AND SURVEYORS AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT NO ENCROACHMENTS EXIST EXCEPT AS NOTED ABOVE AND THAT ALL IMPROVEMENTS ARE SHOWN IN THEIR CORRECT LOCATION RELATIVE TO RECORD BOUNDARIES AS LOCATED BY THIS SURVEY.

Larry W. Medrano 9/30/16
N.M.P.S. No. 11993
DATE



OFFICE LOCATION:
9200 San Mateo Boulevard, NE
Albuquerque, NM 87113

505.856.5700 PHONE
505.856.7900 FAX

RECORDING STAMP

DOCH 2016101807
10/28/2016 09:33 AM Page: 1 of 2
PLAT R: \$25.00 B: 2016C P: 0139 M. Toulouse Oliver, Bernalillo Cou

Sheet 1 of 2

PSI JOB NO 168122P

Legend

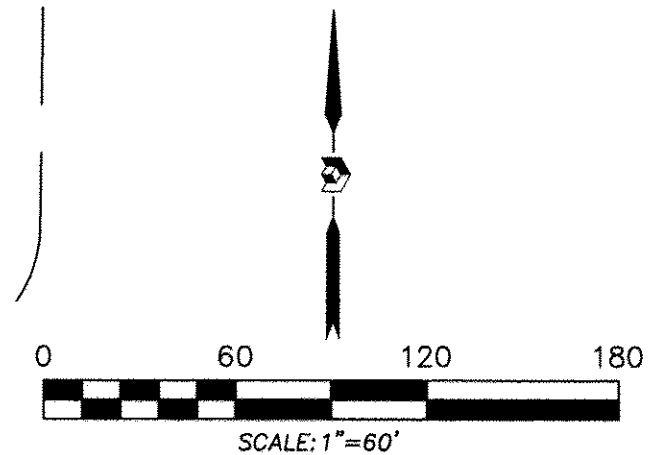
N 90°00'00" E	MEASURED BEARING AND DISTANCES
(N 90°00'00" E)	RECORD BEARINGS AND DISTANCES
○	FOUND AND USED MONUMENT AS DESIGNATED
⊙	DENOTES NO. 4 REBAR WITH YELLOW PLASTIC CAP "PS 11993" SET THIS SURVEY
△	FOUND ALUMINUM AGRS MONUMENT AS DESIGNATED
▲	FOUND ALUMINUM CENTERLINE MONUMENT AS DESIGNATED

RECORDING STAMP

DOCH 2016101807

10/28/2016 09:33 AM Page: 2 of 2
PLAT R: \$28.00 B: 2016C P: 0133 M. Toulouse Oliver, Bernalillo Cou

Plat of
Tract 306-A
Town of Atrisco Unit 8
Town of Atrisco Grant Projected Section 11,
Township 10 North, Range 02 East, N.M.P.M.
Albuquerque, Bernalillo County, New Mexico
October 2016



Coors Boulevard, N.W. (HWY 45)
(PUBLIC ROW WIDTH VARIES)

TRACT 5
WEST BLUFF CENTER SUBDIVISION
(10/02/2000, 2000C-256)

FOUND CL
MONUMENT
"PS 11993"

FOUND NO. 4
REBAR WITH TAG
"17320"

S 89°36'18" E (S 89°36'59" E) N 89°36'18" W

EXISTING 50' WIDE PNM GAS
LINE EASEMENT (10/02/2000,
2000C-256)

WEST END OF
MIAMI ROAD ROW

(373.31')

A.G.R.S. MONUMENT "12_H11"
STANDARD A.G.R.S. ALUMINUM DISC
(FOUND IN PLACE)
NEW MEXICO STATE PLANE COORDINATES
(CENTRAL ZONE-N.A.D. 1983)
N=1,497,519.02
E=1,505,414.361
PUBLISHED EL=5104.854 (NAVD 1988)
GROUND TO GRID FACTOR=0.999680622
DELTA ALPHA ANGLE=-0°15'34.84"

A.G.R.S. MONUMENT "SMW_2"
STANDARD A.G.R.S. BRASS TABLET
(FOUND IN PLACE)
NEW MEXICO STATE PLANE COORDINATES
(CENTRAL ZONE-N.A.D. 1983)
N=1,495,624.988
E=1,507,456.68
PUBLISHED EL=5110.148 (NAVD 1988)
GROUND TO GRID FACTOR=0.999679744
DELTA ALPHA ANGLE=-0°15'20.52"

Point of
Beginning

FOUND CL
MONUMENT
"PS 11993"
(50 O.S.)

Miami Road, N.W.
(60' PUBLIC ROW)

FOUND
CHISELED "X"

R=22.92'
L=23.40'
Δ=58°30'21"
T=12.84'
CH=S 51°29'10" E
22.40'

ADDITIONAL ROW FOR PUBLIC
SIDEWALK DEDICATED TO THE
CITY OF ALBUQUERQUE IN FEE
SIMPLE WITH WARRANTY
COVENANTS
AREA=1,223 SQ FT ±

TRACT B-1
HORIZON ACADEMY SUBDIVISION
(08/11/2011, 2011C-80)

Tract 306-A
AREA=5.3775 ACRES ±
234,244 SQ FT ±

REMAINING PORTION
OF TRACT 306
TOWN OF ATRISCO
GRANT (12/05/1944,
D-117)

FORMER PORTION
OF TRACT 306

N 00°21'00" E (N 00°22'57" E) N 00°21'00" E

LOT LINE ELIMINATED BY THIS PLAT

LOT LINE ELIMINATED BY THIS PLAT

FORMER PORTION
OF TRACT 305

FORMER PORTION
OF TRACT 304

ADDITIONAL ROW FOR PUBLIC
SIDEWALK DEDICATED TO THE
CITY OF ALBUQUERQUE IN FEE
SIMPLE WITH WARRANTY
COVENANTS
AREA=1,068 SQ FT ±

EXISTING 50' WIDE GAS LINE
EASEMENT (09/29/1930,
112-531)

TRACT A-1
HORIZON ACADEMY SUBDIVISION
(08/11/2011, 2011C-80)

ADDITIONAL ROW FOR PUBLIC
SIDEWALK DEDICATED TO THE
CITY OF ALBUQUERQUE IN FEE
SIMPLE WITH WARRANTY
COVENANTS
AREA=1,223 SQ FT ±

FOUND NO. 4
REBAR WITH TAG
"17320"
(REJECTED)

S 13°55'04" E
0.19'

R=313.47'
L=20.14'
Δ=3°40'52"
T=10.07'
CH=S 24°09'38" E
20.14'

S 53°47'02" W
0.92'

EXISTING STORM SEWER
EASEMENT (05/19/1989, MISC.
750A-825
DOC. NO. 8945317)

FOUND NO. 4
REBAR WITH TAG
"17320"
(REJECTED)

R=472.96'
L=197.39'
Δ=23°54'43"
T=100.15'
CH=N 49°23'36" W
195.96'

(R=472.96')
(L=195.20')
(Δ=23°38'51")
(CH=N 49°51'27")
(193.82')

(R=1038.92')
(L=57.08')
(Δ=3°08'52")
(T=28.55')
(CH=N 63°15'19" W)
(57.07')

R=1045.92'
L=54.65'
Δ=2°59'37"
T=27.33'
CH=N 62°54'02" W
54.64'

SOUTH BOUNDARY BASED ON NMDOT RIGHT OF WAY MAPS

324.12' (322.66')

(N 84°11'00" W N 83°59'17" W

FOUND PK NAIL

Interstate 40

(N.M.P. NO. TPU-040-3(89)155 PUBLIC
ROW WIDTH VARIES)

INDEXING INFORMATION FOR COUNTY CLERK
OWNER WEST BLUFF CENTER LLC
SECTION 11, TOWNSHIP 10 N, RANGE 02 E,
SUBDIVISION TOWN OF ATRISCO BLUFF BUSINESS CENTER
UPC NO TRACT 306 101105922524031701
UPC NO TRACT 305 101105923923631702
UPC NO TRACT 304 101105925823031703
UPC NO TRACT 303 101105927120931704

PRECISION
SURVEYS, INC.

OFFICE LOCATION:
9200 San Mateo Boulevard, NE
Albuquerque, NM 87113

505.856.5700 PHONE
505.856.7900 FAX

Sheet 2 of 2
PSI JOB NO 168122P

DRAINAGE MANAGEMENT PLAN

For

West Bluff Business Center

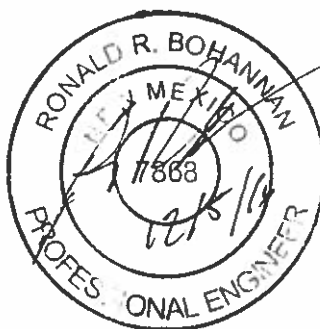
**SWC Miami Street and Atrisco Drive, NW
Albuquerque, New Mexico**

Prepared by:

Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, New Mexico 87109

December, 2016

I certify that this report was prepared under my supervision, and I am a registered Professional Engineer in the State of New Mexico in good standing.



Ronald R. Bohannon, PE
NO. 7868

TW Job No. 2016061

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Map Pockets

Grading and Drainage Plan	Map Pocket
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The purpose of this drainage report is to present a drainage solution for the proposed storage facility development consisting of four buildings and associated parking facility. This report accompanies the request for approval of the Grading and Drainage Plan for Site Development Plan for Building Permit.

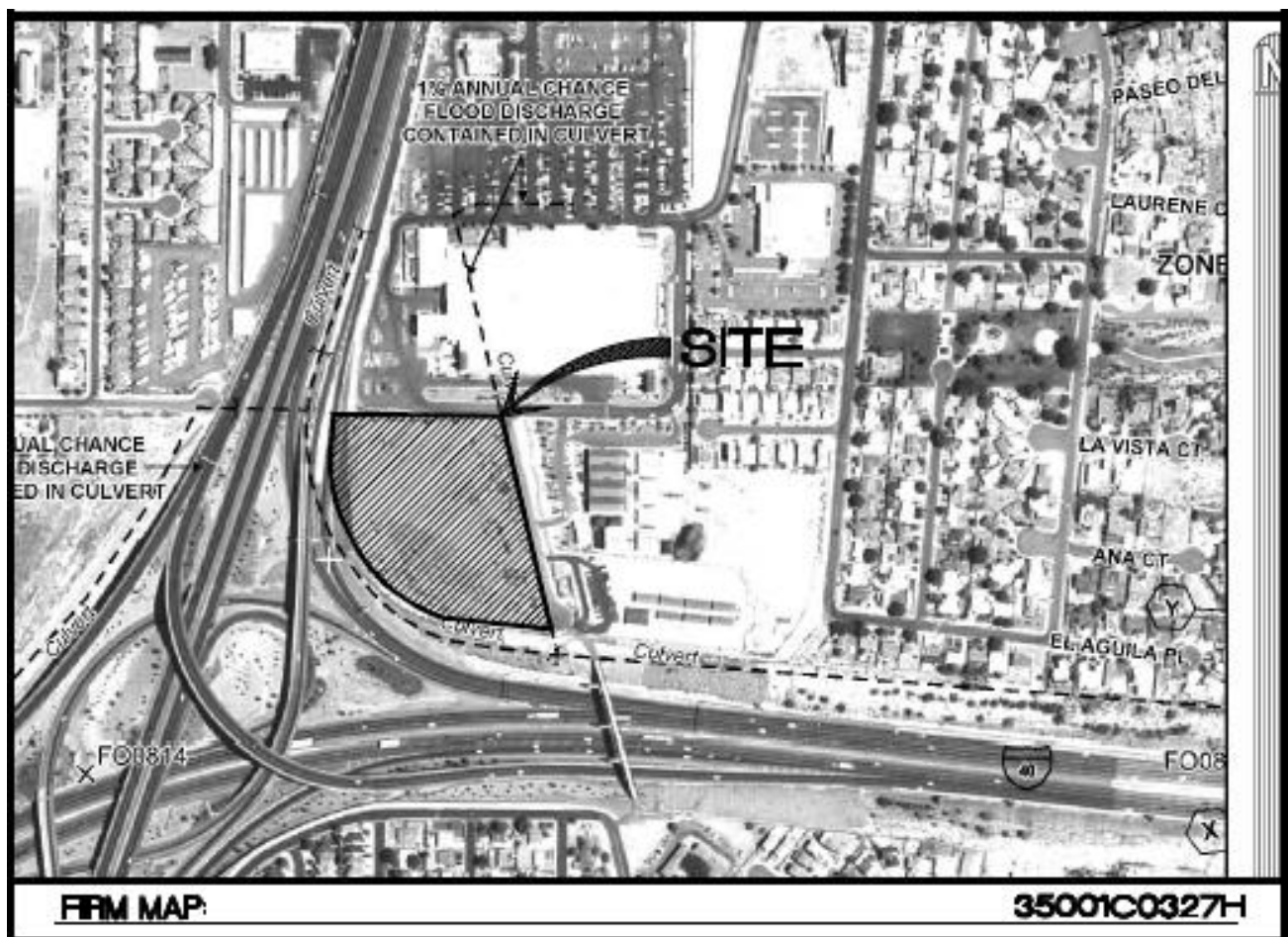
Project Location Map:

[illegible]

Pre-Developed Conditions:

The site is bound on the north by the Miami Street public roadway improvements and an existing retail facility, on the east by Atrisco Drive, on the south by Interstate 40, and on the west by the off-ramp from I-40 to Coors Boulevard. Site terrain is gently sloping and generally drains by sheet flow from northeast to southwest onto the I-40 off-ramp. There is an existing 54-inch storm drain within Atrisco Drive (Atrisco Drain) and a 14'X14' concrete box culvert (CBC) with the public right-of-way along the westerly property boundary. The 54-inch Atrisco Drain connects to the 14'X14' CBC just south of the Atrisco Drive southerly terminus, where it continues toward the east to discharge into the Rio Grande.

Existing conditions, analyzed as a single basin with a runoff rate of 15.27 cfs, generally sheet flow from northeast to southwest discharging onto the Coors Boulevard off-ramp from I-40. No offsite runoff enters the site. The site is located outside any mapped 100-year floodplain, as indicated on FEMA FIRM Map 35001C0327H.



Post-Developed Conditions:

The proposed grading scheme directs storm runoff toward the east by means of surface sheet flow to the extent possible into two water quality retention ponds which then discharge into the existing storm drain system in Atrisco Drive (Atrisco Drain). An onsite private storm drain system will also be employed to capture drainage from areas where sheet flow is impractical. A slope area (Basin C) along the westerly property boundary will flow onto the adjacent slope toward the west, although the flows expected are miniscule (0.27 cfs) especially when compared to the historic flow of 15.27 cfs which were historically conveyed to this area. The onsite storm drain system capacity calculations were performed using FlowMaster and are included in Appendix B. Storm drain lateral connections into the Atrisco Drain will require construction of a new storm drain manhole for the north basin, and connection into an existing manhole in Atrisco Drive for the south basin.

A downstream capacity analysis of the Atrisco Drain was performed by modeling the existing system using StormCAD to assess the system capacity. As a conservative measure, the attenuation effect of the retention ponds was unaccounted for in the analysis. The model was developed using as-built drawing information (included in Appendix C) for the existing system and includes the proposed lateral storm drain connections from the retention ponds. As a matter of clarity, all elevations in the StormCAD model reflect the NGVD 29 Datum, including those of the proposed storm drain lateral connections. Adjusting for the difference between NGVD 29/NAVD88 Datum (approximately 2.80'), the HGL at 100-year peak flows is expected to be 5087.74' at the north lateral, and 5091.24' at the south lateral, both of which are below the retention pond bottom elevations of 5091.00' and 5092.50', respectively. The results indicate the Atrisco Drain has sufficient capacity to accommodate the developed flows from the site without detention ponds.

Water Quality Management

Low Impact Development strategies are implemented in the grading and drainage design by incorporating gravel-lined swales, retention ponds, and CMP risers outfitted with trash racks prior to releasing flows from developed impervious areas. The majority of the surface drainage is conveyed to the retention ponds through gravel-lined swales which act to capture sediment and other debris before reaching the retention ponds. Retention volume is achieved within the ponds and controlled by the crest elevation of the corresponding CMP risers which are sized to convey the 100-year storm at the maximum water surface elevations indicated on the grading and drainage plan. Calculations for required retention volumes, pond volumes, and CMP riser headwater elevations are included in Appendix A.

Conclusion:

This Drainage Management Plan provides for grading and drainage elements which are capable of safely conveying the 100-year, 6-hour storm and which meet the DPM requirements. With this submittal we request Drainage Report and Grading Plan approvals for the Site Development Plan for Building Permit application.

APPENDIX A

**On-Site Hydrology and Hydraulics
Excerpt for Reference**

U-HAUL AT WEST BLUFF

Existing Conditions Basin Data Table

This table is based on the DPM Section 22.2, Zone: 1

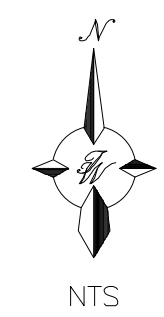
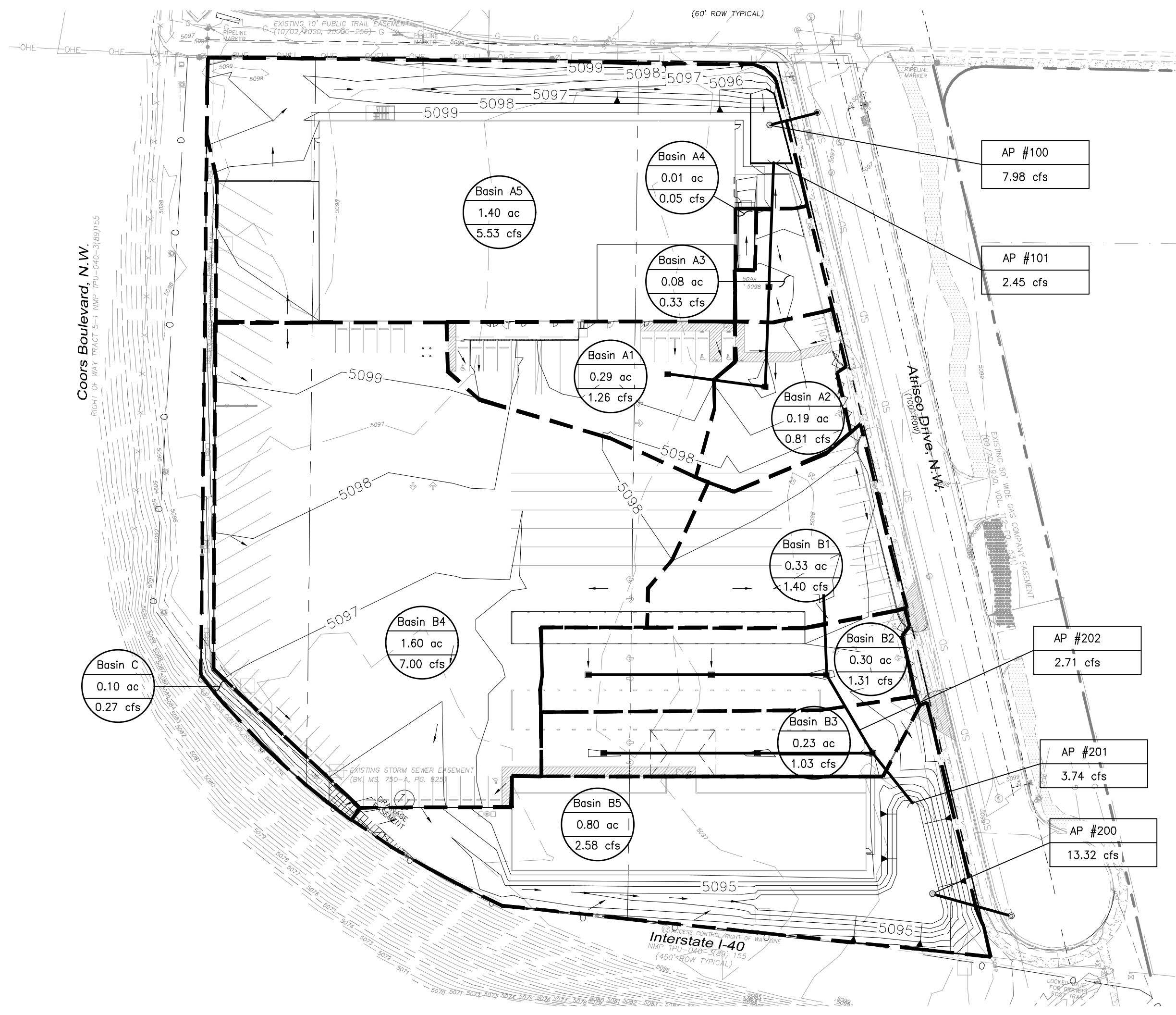
BASIN	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages				Q(100) (cfs/ac.)	Q(100) (CFS)	V(100) (inches)	V(100) (CF)
			A	B	C	D				
EXISTING CONDITIONS										
EX	231788	5.32	0.0%	0.0%	100.0%	0.0%	2.87	15.27	0.99	19123
TOTAL		5.32						15.27	0.99	19123

Proposed Conditions Basin Data Tables

BASIN	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages				Q(100) (cfs/ac.)	Q(100) (CFS)	V(100) (inches)	V(100) (CF)
			A	B	C	D				
PROPOSED CONDITIONS										
A1	12557	0.29	0.0%	0.0%	0.0%	100.0%	4.37	1.26	1.97	2061
A2	8128	0.19	0.0%	0.0%	2.0%	98.0%	4.34	0.81	1.95	1321
A3	3457	0.08	0.0%	0.0%	13.0%	87.0%	4.18	0.33	1.84	531
A4	530	0.01	0.0%	0.0%	0.0%	100.0%	4.37	0.05	1.97	87
A5	60973	1.40	0.0%	0.0%	28.0%	72.0%	3.95	5.53	1.70	8615
TOTAL		1.97						7.98	1.97	12616

BASIN	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages				Q(100) (cfs/ac.)	Q(100) (CFS)	V(100) (inches)	V(100) (CF)
			A	B	C	D				
PROPOSED CONDITIONS										
B1	14177	0.33	0.0%	0.0%	4.0%	96.0%	4.31	1.40	1.93	2281
B2	13057	0.30	0.0%	0.0%	0.0%	100.0%	4.37	1.31	1.97	2144
B3	10227	0.23	0.0%	0.0%	0.0%	100.0%	4.37	1.03	1.97	1679
B4	69786	1.60	0.0%	0.0%	0.0%	100.0%	4.37	7.00	1.97	11457
B5	34751	0.80	0.0%	0.0%	76.0%	24.0%	3.23	2.58	1.23	3548
TOTAL		3.26						13.32	1.93	21108

BASIN	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages				Q(100) (cfs/ac.)	Q(100) (CFS)	V(100) (inches)	V(100) (CF)
			A	B	C	D				
PROPOSED CONDITIONS										
C	4145	0.10	0.0%	0.0%	100.0%	0.0%	2.87	0.27	0.99	342
TOTAL		0.10						0.27	0.99	342



LEGEND

--- DRAINAGE BASIN

→ FLOW DIRECTION

Basin ID
Basin Area
Q₁₀₀(cfs)

Analysis Point
Q₁₀₀

POST-DEVELOPMENT DRAINAGE BASINS

FIRST FLUSH RETENTION VOLUME CALCULATIONS

NORTH POND (A) RETENTION VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
5091	707	0	0
5092	757	732	732
5093	809	783	1515
5094*	853	831	2346

VOLUME PROVIDED: 2346

VOLUME REQUIRED:

IMPERVIOUS AREA (Ai): 67,236 sf

VOLUME REQ'd= $A_i(0.44-0.1)/12=$ **1,905**

OK

*CMP RISER ELEVATION

SOUTH POND (B) RETENTION VOLUME CALCULATIONS

ELEVATION (ft)	AREA (sf)	VOLUME (cf)	CUMULATIVE VOLUME (cf)
5092.5	2447	0	0
5093.5	4155	3301	3301
5094*	5171	2331.5	5633

VOLUME PROVIDED: 5633

VOLUME REQUIRED:

IMPERVIOUS AREA (Ai): 120,893 sf

VOLUME REQ'd= $A_i(0.44-0.1)/12=$ **3,425**

OK

*CMP RISER ELEVATION

Water Quality CMP Riser-Orifice Calculations

ONSITE POND A (NORTH POIND) HEADWATER CALCULATION

Orifice Equation (Solved for H)

$$H = \frac{\left(\frac{Q}{C_d A_o} \right)^2}{2g}$$

C = 0.6
Diameter (in) **18**
Area (ft^2)= 1.767
g = 32.2
Q (CFS)= 7.98 (FROM AP #100)

H (Ft) = 0.88

CALCULATE MAXIMUM WATER SURFACE ELEVATION (WSE)

WSE= [RISER ELEVATION]+ [HEADWATER]

Riser Elavation: 5094.0

MAX WSE= 5094.9

ONSITE POND B (SOUT POIND) HEADWATER CALCULATION

Orifice Equation (Solved for H)

$$H = \frac{\left(\frac{Q}{C_d A_o} \right)^2}{2g}$$

C = 0.6
Diameter (in) **30**
Area (ft^2)= 4.909
g = 32.2
Q (CFS)= 13.32 (FROM AP #200)

H (Ft) = 0.32

CALCULATE MAXIMUM WATER SURFACE ELEVATION (WSE)

WSE= [RISER ELEVATION]+ [HEADWATER]

Riser Elavation: 5094.0

MAX WSE= 5094.3

Worksheet for Circular Pipe - A Outlet

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.010	
Channel Slope	0.01000	ft/ft
Diameter	12	in
Discharge	2.45	ft ³ /s

Results

Normal Depth	0.52	ft
Flow Area	0.41	ft ²
Wetted Perimeter	1.60	ft
Hydraulic Radius	0.26	ft
Top Width	1.00	ft
Critical Depth	0.67	ft
Percent Full	51.7	%
Critical Slope	0.00448	ft/ft
Velocity	5.98	ft/s
Velocity Head	0.56	ft
Specific Energy	1.07	ft
Froude Number	1.65	
Maximum Discharge	4.98	ft ³ /s
Discharge Full	4.63	ft ³ /s
Slope Full	0.00280	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	51.70	%
Downstream Velocity	Infinity	ft/s

Worksheet for Circular Pipe - B Outlet

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.010	
Channel Slope	0.01000	ft/ft
Diameter	12	in
Discharge	3.74	ft ³ /s

Results

Normal Depth	0.68	ft
Flow Area	0.57	ft ²
Wetted Perimeter	1.94	ft
Hydraulic Radius	0.29	ft
Top Width	0.93	ft
Critical Depth	0.82	ft
Percent Full	68.1	%
Critical Slope	0.00647	ft/ft
Velocity	6.56	ft/s
Velocity Head	0.67	ft
Specific Energy	1.35	ft
Froude Number	1.48	
Maximum Discharge	4.98	ft ³ /s
Discharge Full	4.63	ft ³ /s
Slope Full	0.00652	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	68.11	%
Downstream Velocity	Infinity	ft/s

Worksheet for Circular Pipe - PB2

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.010	
Channel Slope	0.00500	ft/ft
Diameter	12	in
Discharge	2.71	ft ³ /s

Results

Normal Depth	0.69	ft
Flow Area	0.58	ft ²
Wetted Perimeter	1.97	ft
Hydraulic Radius	0.30	ft
Top Width	0.92	ft
Critical Depth	0.71	ft
Percent Full	69.4	%
Critical Slope	0.00478	ft/ft
Velocity	4.66	ft/s
Velocity Head	0.34	ft
Specific Energy	1.03	ft
Froude Number	1.03	
Maximum Discharge	3.52	ft ³ /s
Discharge Full	3.27	ft ³ /s
Slope Full	0.00342	ft/ft
Flow Type	SuperCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	69.40	%
Downstream Velocity	Infinity	ft/s

Worksheet for Triangular Channel - A5

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.041	
Channel Slope	0.01000	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Discharge	5.53	ft ³ /s

Results

Normal Depth	0.94	ft
Flow Area	2.62	ft ²
Wetted Perimeter	5.91	ft
Hydraulic Radius	0.44	ft
Top Width	5.61	ft
Critical Depth	0.73	ft
Critical Slope	0.03672	ft/ft
Velocity	2.11	ft/s
Velocity Head	0.07	ft
Specific Energy	1.00	ft
Froude Number	0.54	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.94	ft
Critical Depth	0.73	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.03672	ft/ft

Worksheet for Triangular Channel - B4

Project Description

Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Roughness Coefficient	0.041	
Channel Slope	0.01000	ft/ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Discharge	7.00	ft ³ /s

Results

Normal Depth	1.02	ft
Flow Area	3.13	ft ²
Wetted Perimeter	6.46	ft
Hydraulic Radius	0.48	ft
Top Width	6.13	ft
Critical Depth	0.81	ft
Critical Slope	0.03559	ft/ft
Velocity	2.24	ft/s
Velocity Head	0.08	ft
Specific Energy	1.10	ft
Froude Number	0.55	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

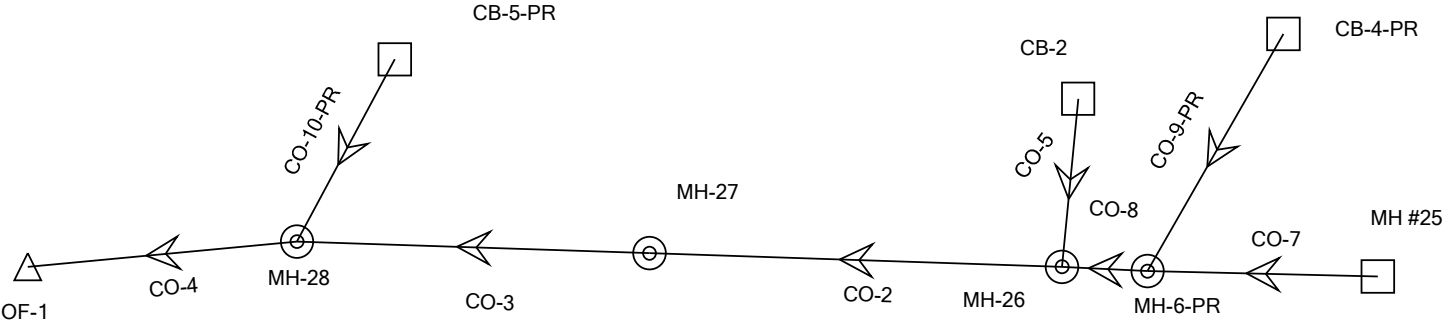
GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.02	ft
Critical Depth	0.81	ft
Channel Slope	0.01000	ft/ft
Critical Slope	0.03559	ft/ft

APPENDIX B

Off-Site Hydraulics Capacity Analysis Atrisco Drain

Scenario: Base



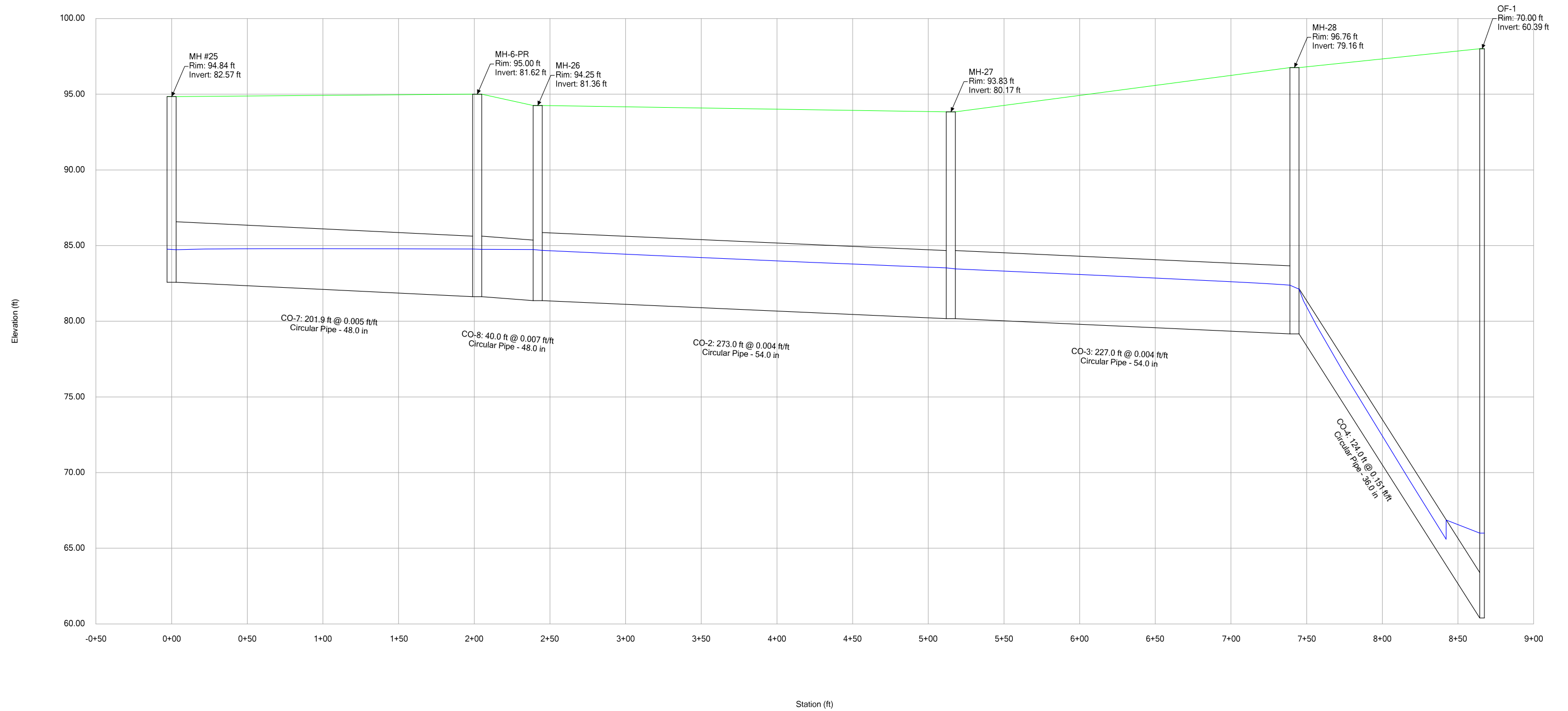
Scenario: Base
Current Time Step: 0.000Hr
Conduit FlexTable: Combined Pipe/Node Report

Label	Start Node	Stop Node	Length (Unified) (ft)	Capacity (Full Flow) (ft ³ /s)	Flow (Link) (ft ³ /s)	Velocity (Average) (ft/s)	Slope (ft/ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Invert (Downstream) (ft)	Invert (Upstream) (ft)
CO-10-PR	CB-5-PR	MH-28	50.0	10.50	13.32	7.54	0.010	88.44	87.56	86.20	86.70
CO-9-PR	CB-4-PR	MH-6-PR	30.0	10.50	7.98	4.52	0.010	84.94	84.77	82.90	83.20
CO-5	CB-2	MH-26	31.0	112.45	60.00	36.38	0.247	91.65	84.74	82.00	89.66
CO-8	MH-6-PR	MH-26	40.0	115.80	55.98	9.14	0.007	84.75	84.74	81.36	81.62
CO-7	MH #25	MH-6-PR	201.9	98.52	48.00	7.79	0.005	84.73	84.77	81.62	82.57
CO-4	MH-28	OF-1	124.0	259.49	129.30	36.68	0.151	82.12	66.00	60.39	79.16
CO-3	MH-27	MH-28	227.0	131.16	115.98	9.31	0.004	83.46	82.38	79.16	80.17
CO-2	MH-26	MH-27	273.0	129.83	115.98	9.23	0.004	84.68	83.53	80.17	81.36

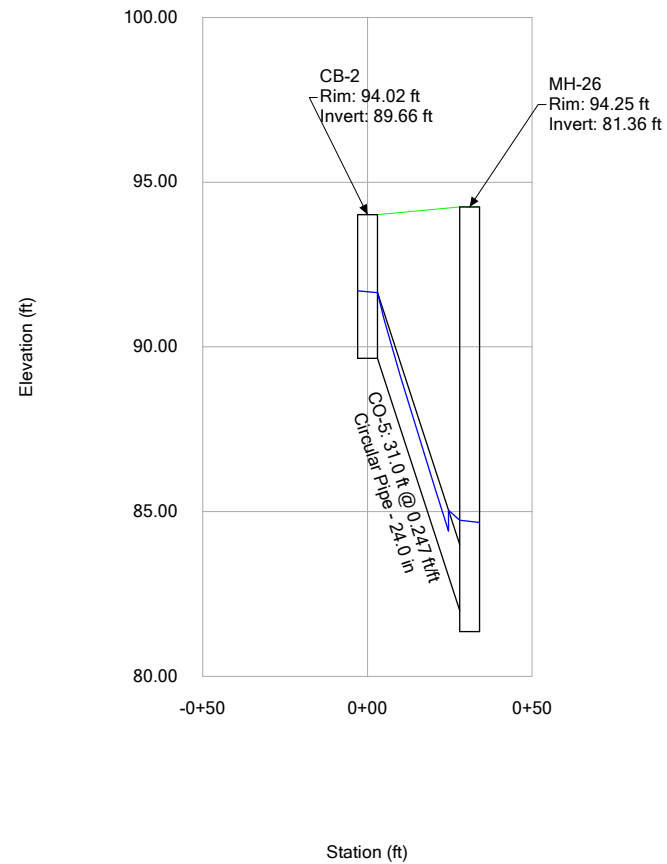
Z:\2016\2016061 U-Haul West Bluff\Working Documents\2016061 Atrisco Storm proposed.stc

Profile Report

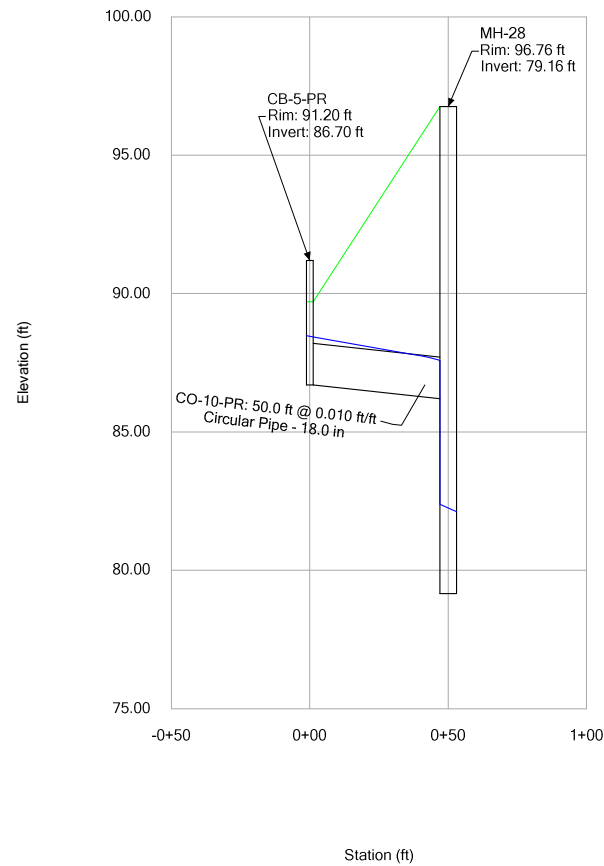
Engineering Profile - Profile - 1-Atrisco Trunk (2016061 Atrisco Storm proposed.stc)



Profile Report **Engineering Profile - Profile - 2-Lateral @ MH#26 (2016061 Atrisco Storm proposed.stc)**

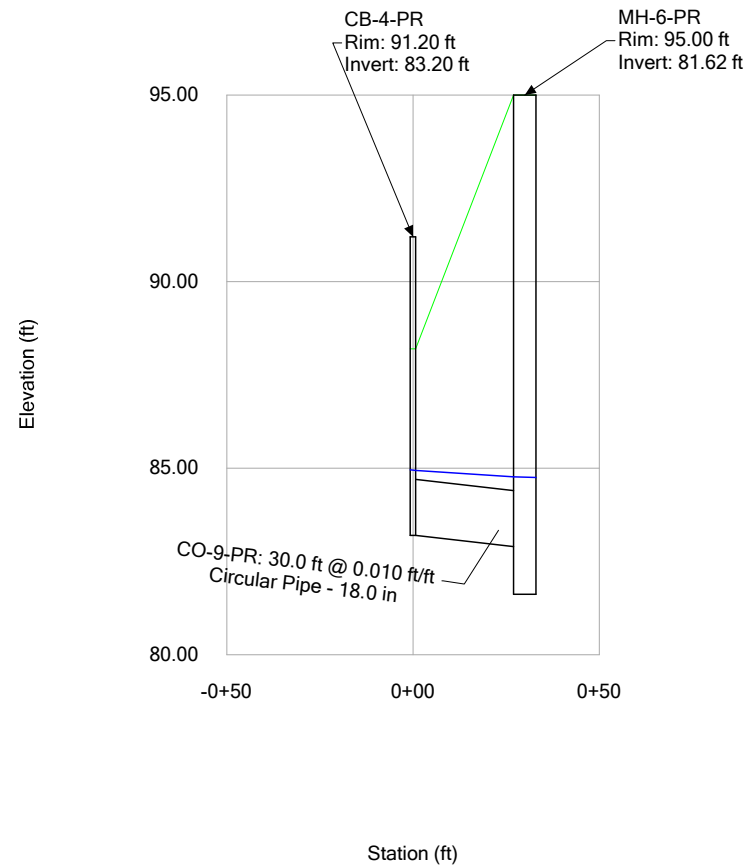


Profile Report **Engineering Profile - Profile - 3- New South Lateral (2016061 Atrisco Storm proposed.stc)**



Profile Report

Engineering Profile - Profile - 4-New North Lateral (2016061 Atrisco Storm proposed.stc)



APPENDIX B

Worksheet for Exist. Single C- Atrisco

Project Description

Solve For Spread

Input Data

Discharge	10.00	ft ³ /s	Q PER INLET (60 CFS/6)
Gutter Width	2.00	ft	
Gutter Cross Slope	0.02	ft/ft	
Road Cross Slope	0.02	ft/ft	
Local Depression	2.00	in	
Local Depression Width	4.00	ft	
Grate Width	2.00	ft	
Grate Length	3.33	ft	
Grate Type	P-30 mm (P-1-7/8")		
Clogging	50.00	%	
Curb Opening Length	4.00	ft	
Opening Height	0.50	ft	
Curb Throat Type	Horizontal		
Throat Incline Angle	90.00	degrees	

Options

Calculation Option Use Both

Results

Spread	21.88	ft	
Depth	0.44	ft	<0.67', THEREFORE OK.
Gutter Depression	0.00	ft	
Total Depression	0.17	ft	
Open Grate Area	2.00	ft ²	
Active Grate Weir Length	5.33	ft	

APPENDIX C

**Drainage Report for SAD 219
Excerpt for Reference**

III. CORONA AREA / I-40 AREA

Proposed street improvements for SAD 219 in the Corona Area consist of the following: (1) Atrisco Drive from I-40 to Corona, and (2) Corona from Atrisco Drive to Ouray Road.

A. Hydrology

Hydrologic analysis criteria used for this area of study are listed as follows:

1. City of Albuquerque Development Process Manual (DPM)
2. Albuquerque Master Drainage Study
3. West Bluff Drainage Study

The prevalent hydrologic soil classification for this area of SAD 219 is Class B. The current zoning is predominantly SU-1 for C-2. Therefore, a C Factor of 0.90 was used. Based on this criteria, the Rational formula was used to calculate runoff for the three drainage basins defined on Sheet 2 of 9 located in the map pockets at the end of this report. Also shown on that sheet are the discharge rates for the 100 year storm for each of the drainage basins.

B. Hydraulics

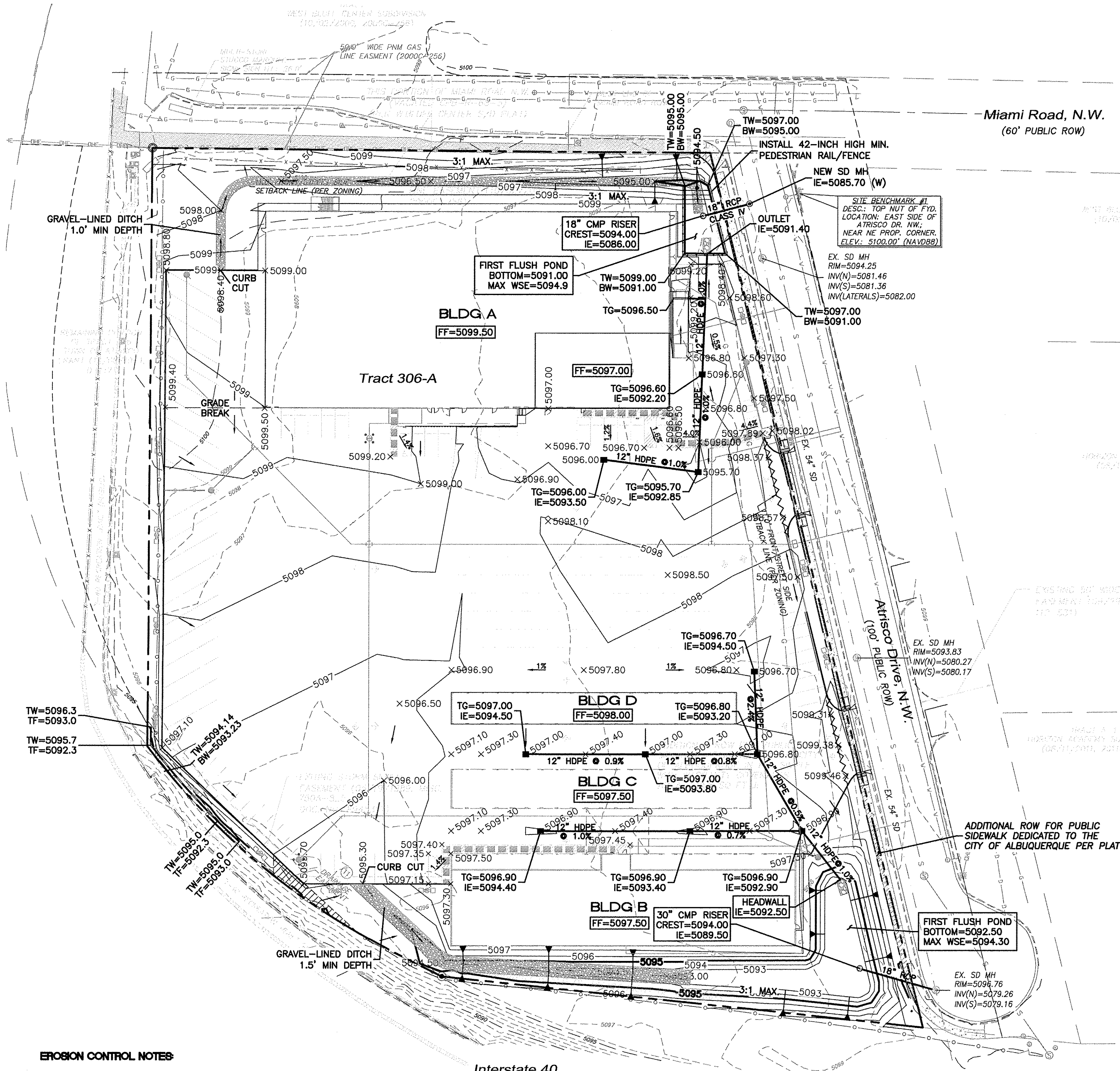
The area is relatively flat, and it is anticipated that the proposed street grades will be approximately 0.50%. Therefore, the capacity of the streets will be approximately 52 cfs. There are four drainage basins defined as shown on Drainage Map H-11 (Sheet 2 of 9) in the map pockets of this report. It is proposed to discharge the 48 cfs runoff from Area H-11-1b into the West Bluffs System via a 36" and 42" RCP pipe running down Corona and Atrisco. Drainage Area H11-2 (82 cfs) will be carried via a combination of street and channel surface flow to Atrisco, and then conveyed to the West Bluffs System via drop inlets and a 42" RCP pipe on Atrisco. Flows generated on the north cul-de-sac of Atrisco (Area H11-1a) will be picked up by a proposed drop inlet in the end of the cul-de-sac, and carried to the West Bluffs drainage pipe along Coors Boulevard by way of an existing 60" storm drain, or can be routed to the existing drop inlet on the south side of Ouray \pm 600 feet east of Coors Boulevard.

Drainage basin H11-3 will generate peak flows of 38 cfs during the 100 year rainfall event. It is proposed that these flows be carried on site to the west, and collected at the central point at which time they will be directly discharged into the West Bluff storm sewer system. The point of discharge for this drainage basin will be the 14' x 14' CBC section with a 2,349 cfs capacity. Time of concentration for this drainage basin in SAD 219 is 0.12 hours (7 minutes). As each tract in Area H11-3 is developed, the drainage system should be constructed which will convey the developed flows into the adjacent West Bluffs system. The collection system for Area H11-3 is not proposed to be part of SAD 219. Additionally, stormwater runoff from Drainage Area H11-3 should not be permitted to drain onto Atrisco Drive.

SAD 219 DRAINAGE SUMMARY SHEET

ATRISCO / CORONA AREA

<u>Area</u> <u>Designation</u>	<u>Area</u> <u>(Acres)</u>	<u>Rainfall</u> <u>Intensity (i)</u>	<u>C Factor</u>	<u>100 year</u> <u>Runoff Rate</u>
<u>West Bluffs Channel Outfall</u>				
H11-1a	5.10	4.65	0.90	21.30
H11-1b	11.50	4.65	0.90	48.10
H11-2	19.51	4.65	0.90	81.65
H11-3	9.09	4.65	0.90	38.04



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.

Interstate 40
(N.M.P. NO. TPU-040-3(89)155 PUBLIC ROW
WIDTH VARIES)

CAUTION

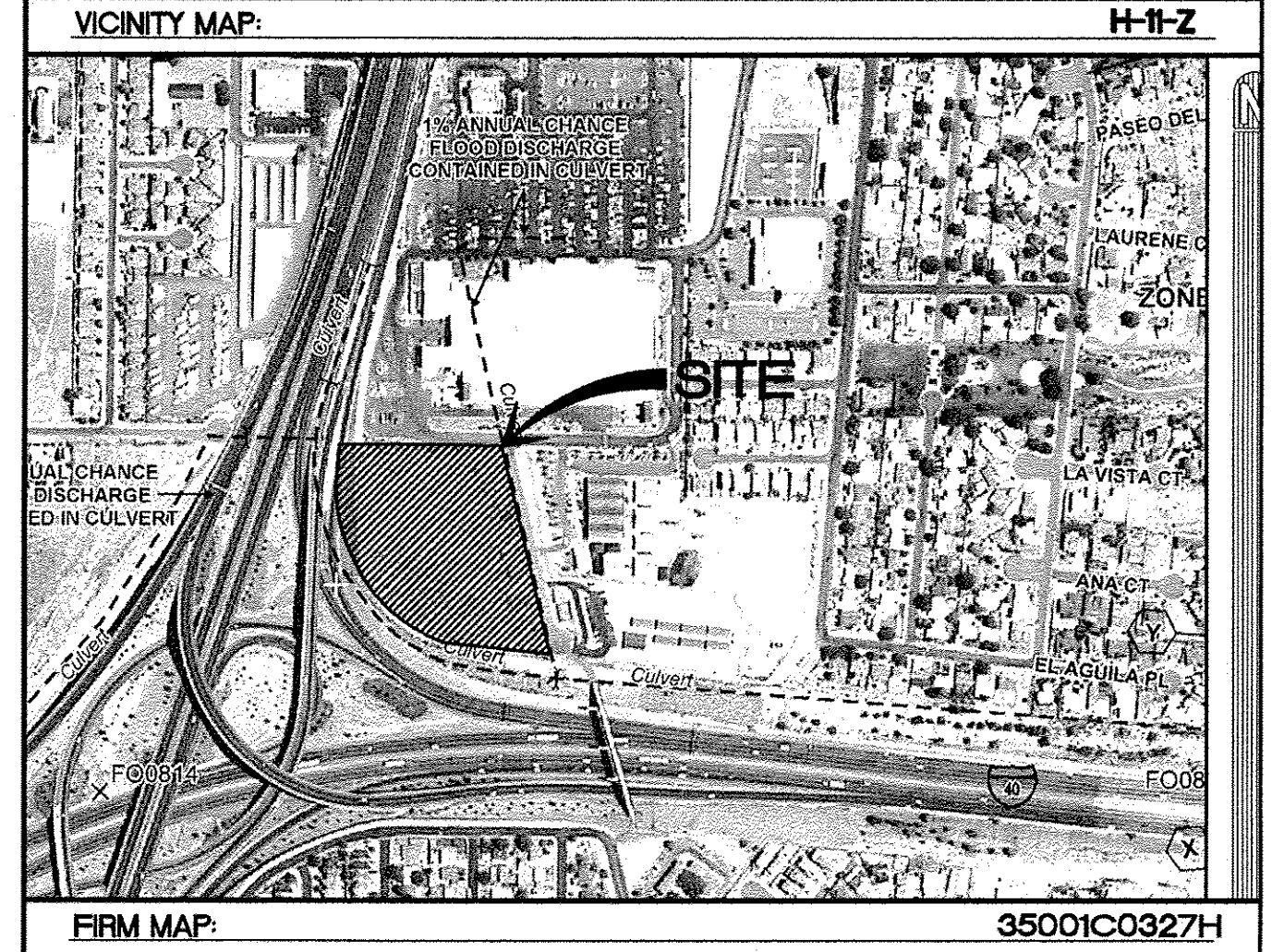
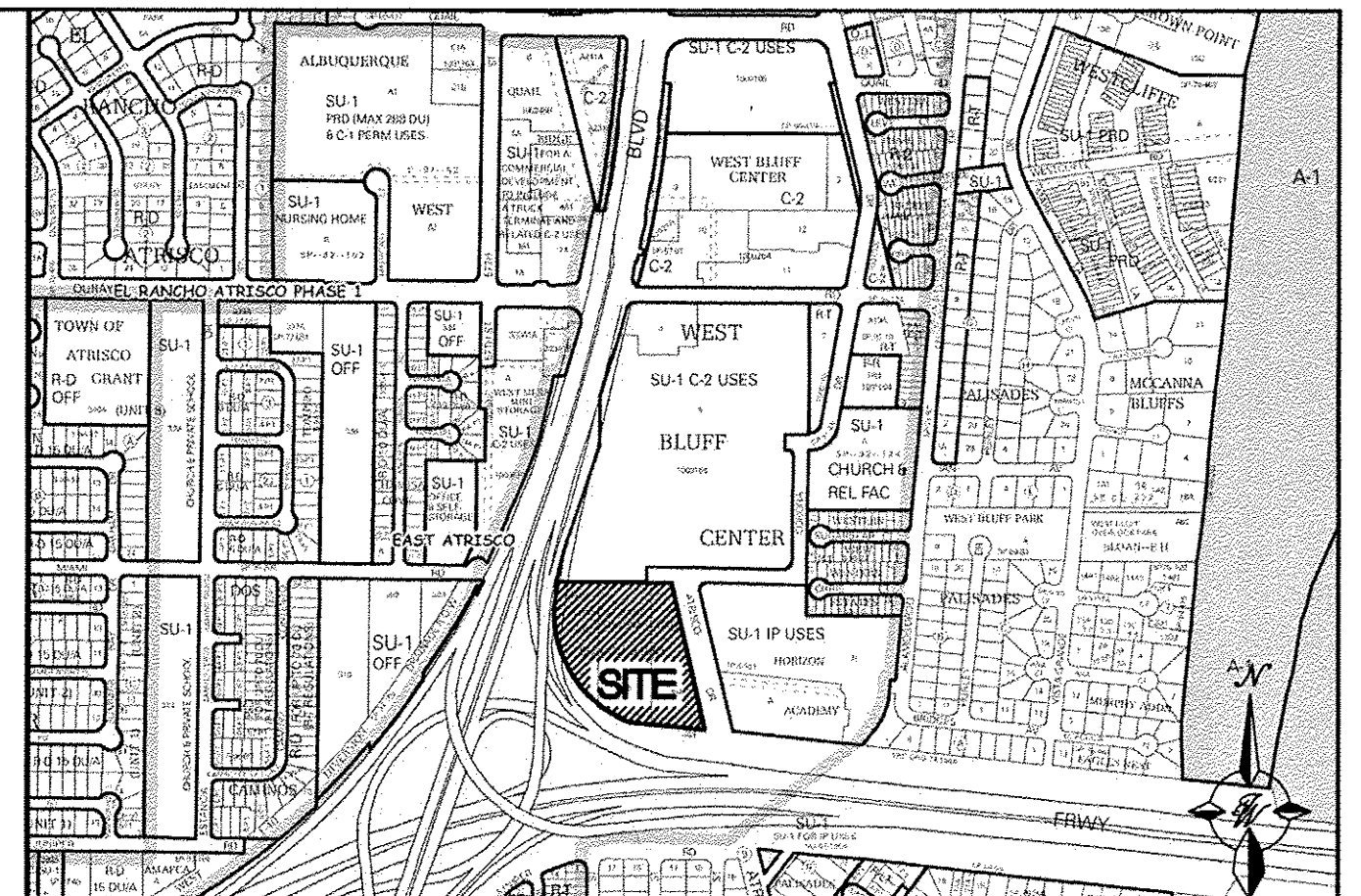
ALL EXISTING UTILITIES SHOWN WERE OBTAINED FROM RESEARCH, AS-BUILTS, SURVEYS OR INFORMATION PROVIDED BY OTHERS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO AND INCLUDING ANY EXCAVATION, TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND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

NOTES:

- ALL EXISTING STORM DRAIN RIM & INVERT INFORMATION ALONG ATRISCO DR NW FROM CITY PROJECT NO. 3558.
- SEE SHEET GR-2 FOR DETAILED ACCESSIBLE ROUTE.

LEGEND

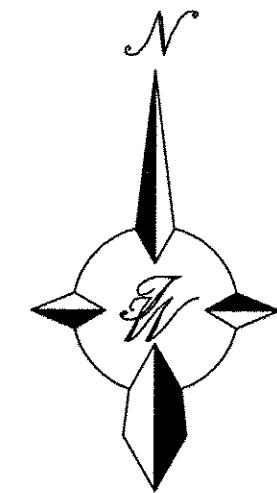
- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- CENTERLINE
- RIGHT-OF-WAY
- BUILDING
- SIDEWALK
- RETAINING WALL
- CONTOUR MAJOR
- CONTOUR MINOR
- SPOT ELEVATION
- FLOW ARROW
- EXISTING CURB & GUTTER
- EXISTING BOUNDARY LINE
- EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- EXISTING SPOT ELEVATION
- ACCESSIBLE ROUTE
- WATERBLOCK



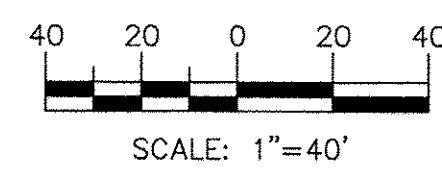
NOTICE TO CONTRACTORS



- AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
- ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HERON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1985.
- TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
- BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
- MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
- WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.

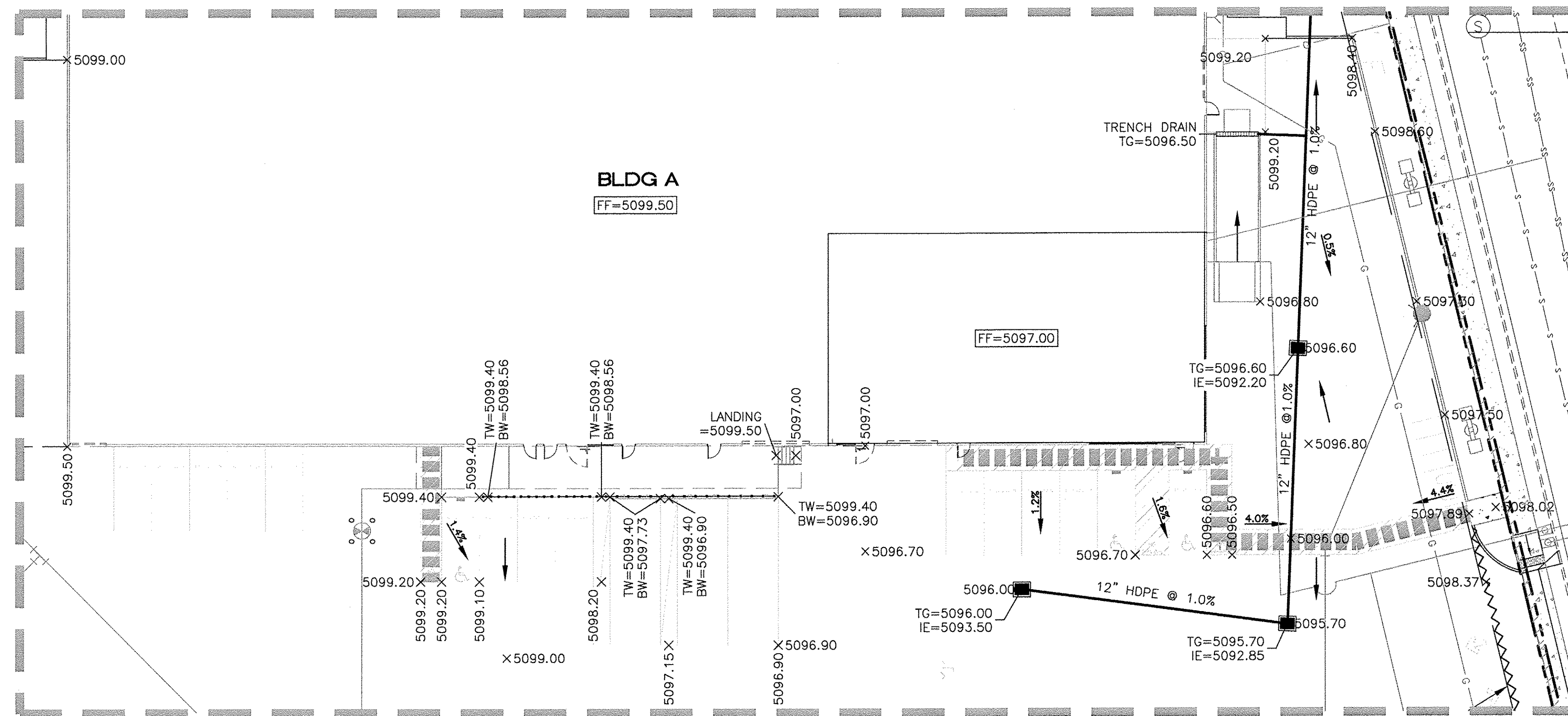
APPROVAL	NAME	DATE
INSPECTOR		



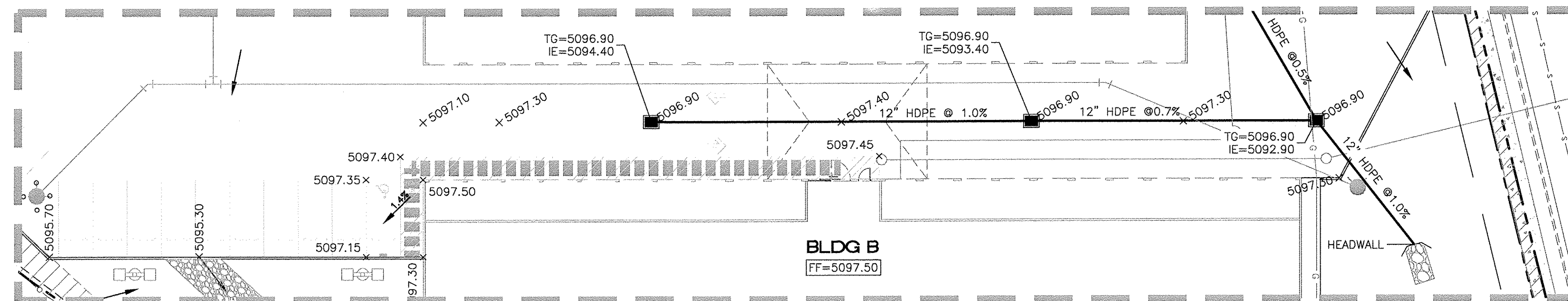
GRAPHIC SCALE



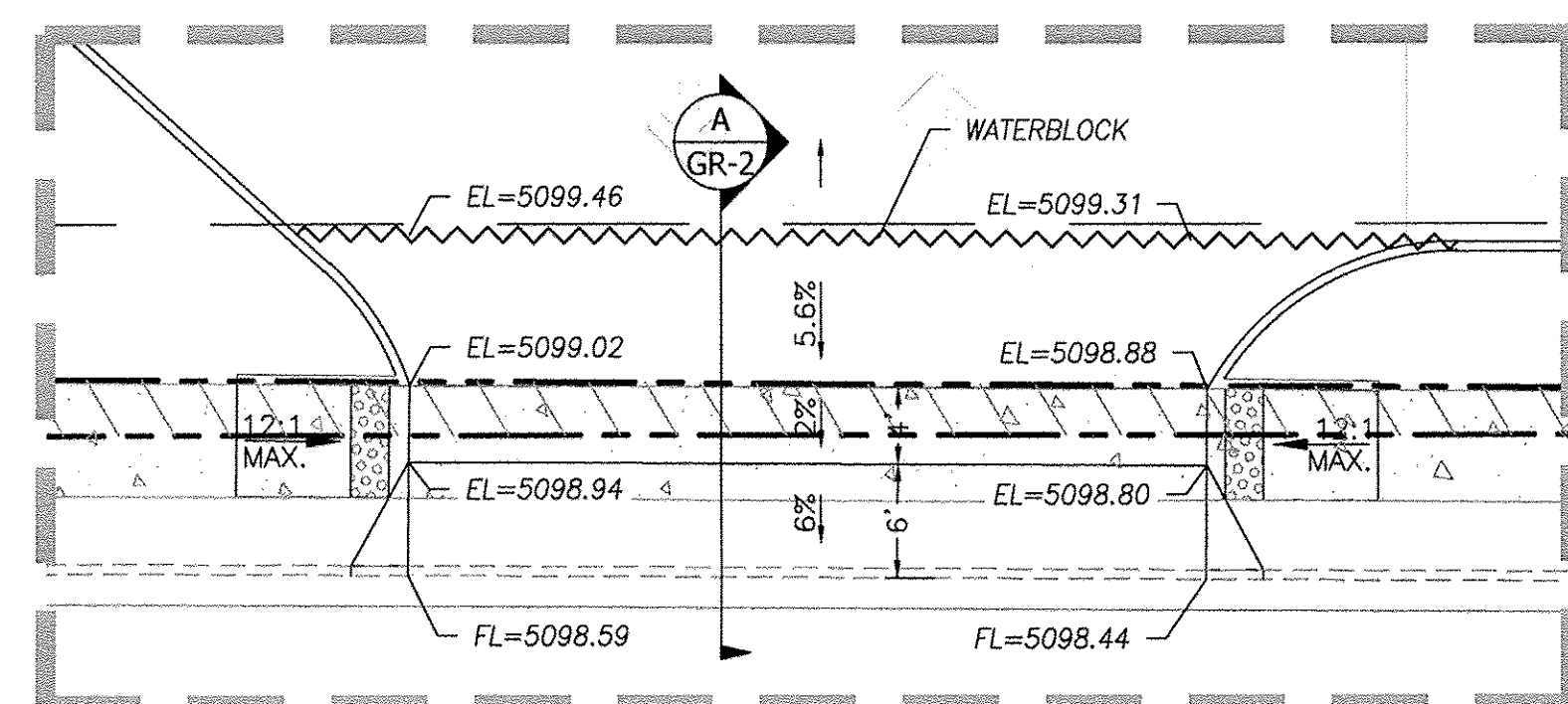
ENGINEER'S SEAL	WEST BLUFF BUSINESS CENTER	DRAWN BY DY
		DATE 1/30/17
	GRADING AND DRAINAGE PLAN	2016061-GRB
	 TIERRA WEST, LLC 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrawestllc.com	SHEET # GR-1
RONALD R. BOHANNAN P.E. #7868		JOB # 2016061



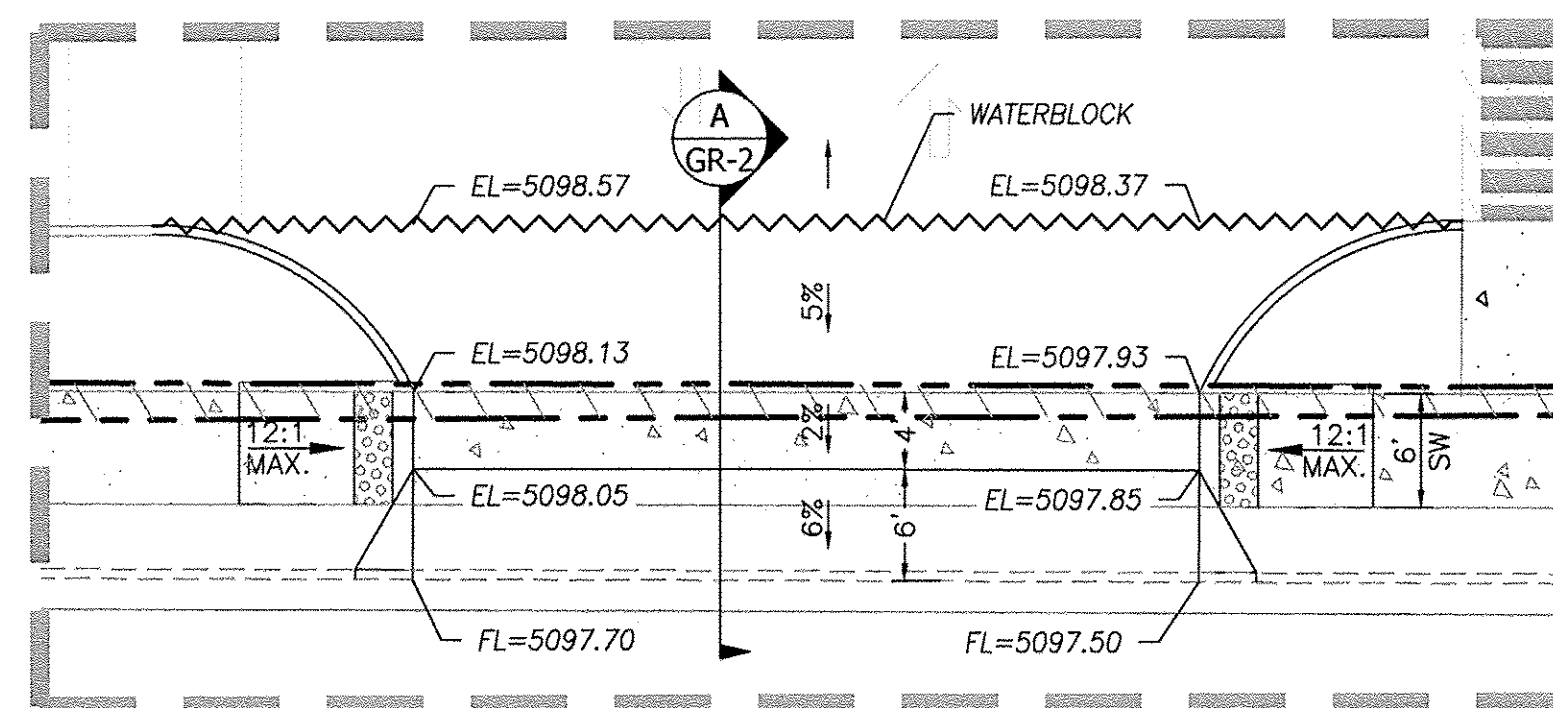
BLDG A GRADES
SC: 1"=20'



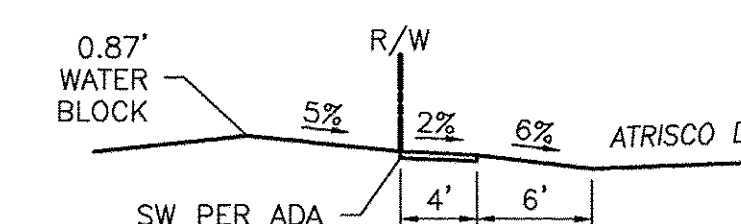
BLDG B GRADES
SC: 1"=20'



SOUTH ENTRANCE
SC: 1"=10'



NORTH ENTRANCE
SC: 1"=10'



SECTION A-A
SC: 1"=10'

EROSION CONTROL NOTES:

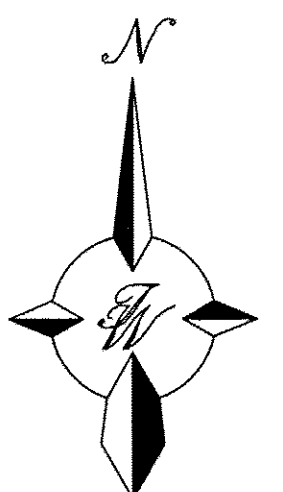
1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
4. REPAIR OF DAMAGED FACILITIES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

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.



LEGEND

- CURB & GUTTER
- - - BOUNDARY LINE
- - - EASEMENT
- - - CENTERLINE
- BUILDING
- SIDEWALK
- x 5048.25 SPOT ELEVATION
- FLOW ARROW
- - - EXISTING CURB & GUTTER
- - - EXISTING BOUNDARY LINE
- ACCESSIBLE ROUTE
- WATERBLOCK



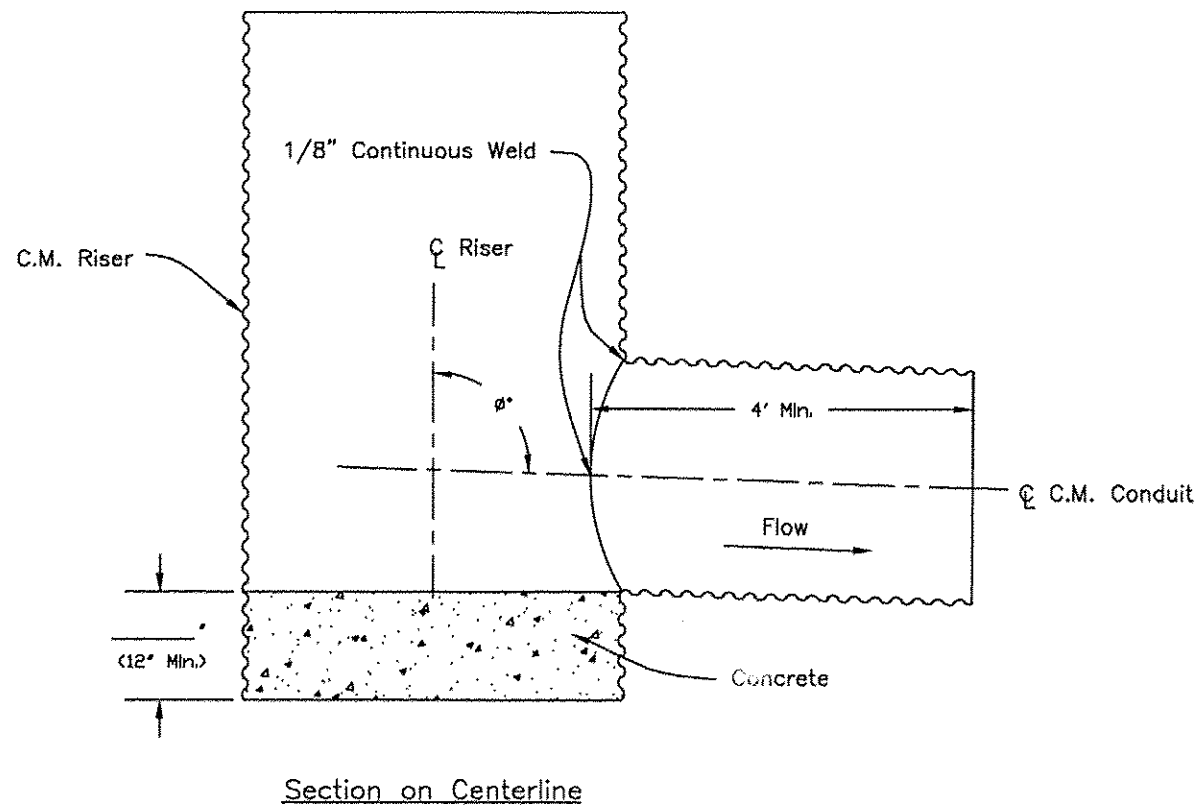
GRAPHIC SCALE



<div>ENGINEER'S SEAL</div> <div></div> <div>RONALD R. BOHANNAN P.E. #7868</div>	<div>WEST BLUFF BUSINESS CENTER</div> <div>GRADING AND DRAINAGE PLAN</div> <div><div>TIERRA WEST, LLC 5571 MIDWAY PARK PLACE NE ALBUQUERQUE, NM 87109 (505) 858-3100 www.tierrowestllc.com</div></div>		<div>DRAWN BY DY</div>
			<div>DATE 1/25/17</div>
			<div>2016061-GRB</div>
			<div>SHEET # GR-2</div> <div>JOB # 2016061</div>

Bill of Materials			
C.M. Riser	_____	Diam., _____	Lin. Ft., Metal thickness = _____" (_____ Gage)
C.M. Conduit	_____	Diam., _____	Lin. Ft., Metal thickness = _____" (_____ Gage)
Ø Angle	= _____ Degrees		
Volume of Concrete	= _____ Cu. Yds.		

Concrete Table	
Riser Diameter (Inches)	Volume of Concrete (Cu. Yds./Inch)
18	.0055
21	.0074
24	.0097
30	.0152
36	.0218



- Notes:
1. The maximum diameter of the C.M. riser shall be 36".
 2. The maximum height of the C.M. riser measured from the top of the riser to the invert of the C.M. conduit shall be 13 feet.

USDA United States
Department of
Agriculture
Natural Resources
Conservation Service

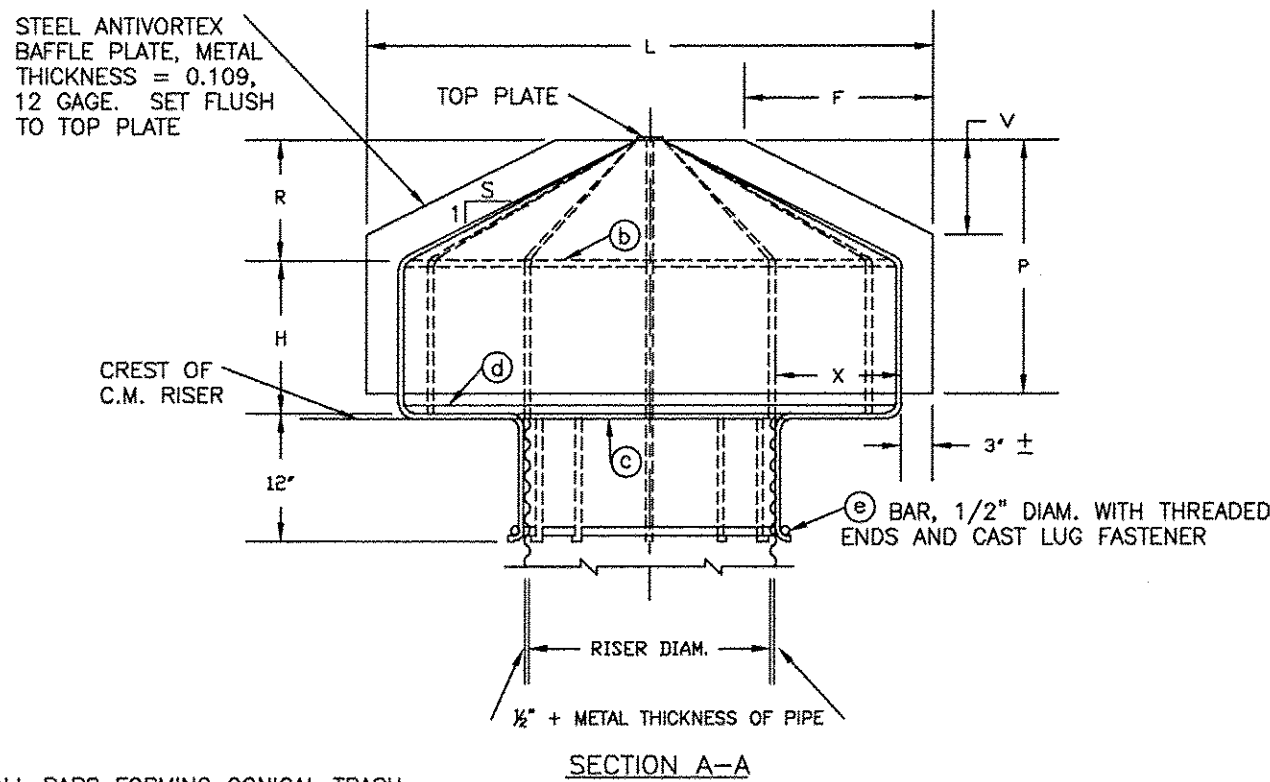
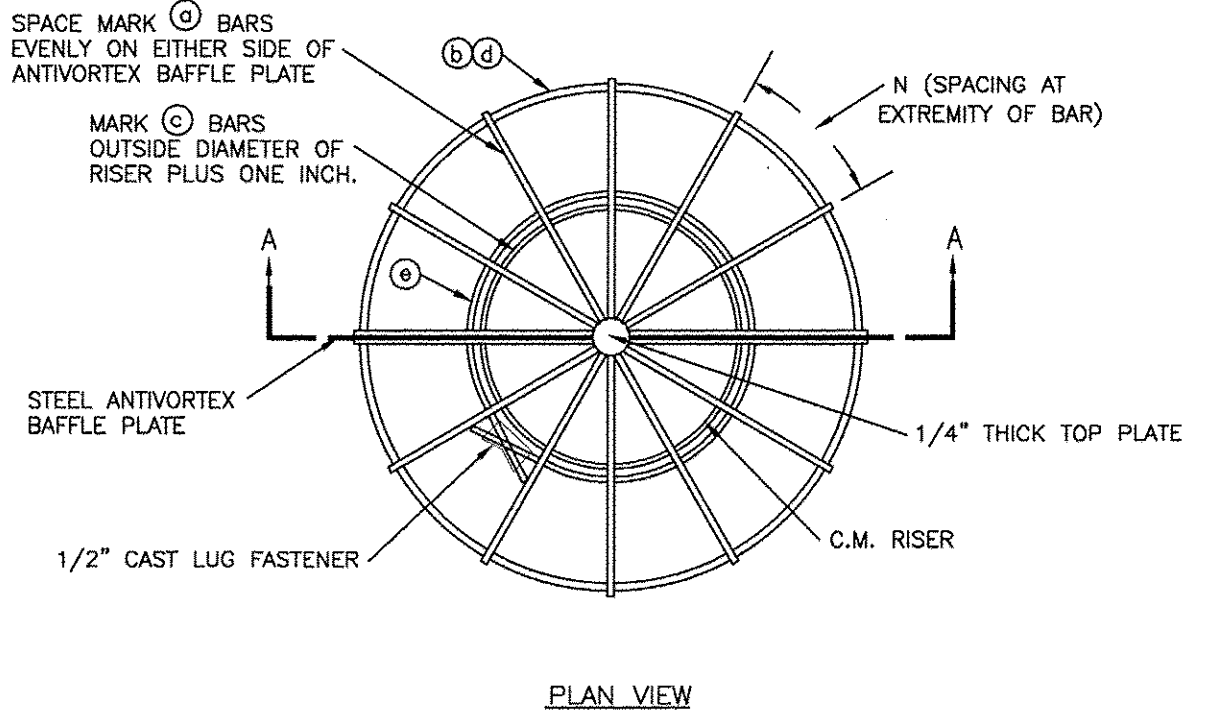
C.M. RISER DETAILS
(ROUND CONCRETE BASE)
CLIENT: #####
COUNTY: #####

Designed: #### Date: ####
Drawn: #### Date: 07/14
Checked: _____
Approved: _____
SheetXX of ###

USDA United States
Department of
Agriculture
Natural Resources
Conservation Service

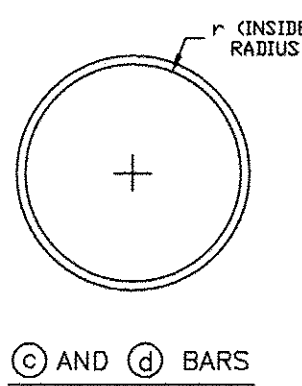
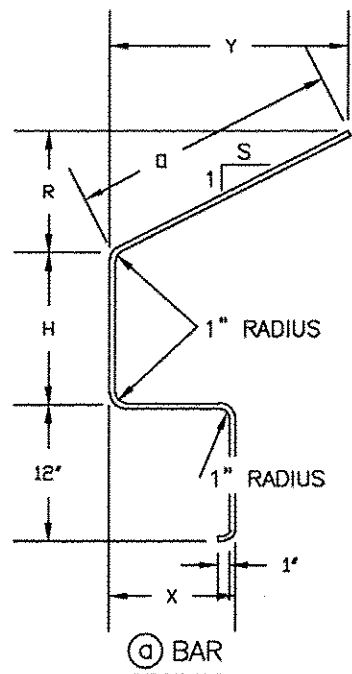
CONICAL TRASH RACK AND
BAFFLE PLATE FOR 18" TO 36"
DIAM. C.M. RISERS
CLIENT: #####
COUNTY: #####

Designed: #### Date: ####
Drawn: #### Date: 07/14
Checked: _____
Approved: _____
SheetXX of ###



ALL BARS FORMING CONICAL TRASH RACK ARE MARK (C) BARS, UNLESS OTHERWISE NOTED.

- NOTES:
1. WELD 4 MARK (C) BARS TO BAFFLE PLATE AND TO TOP PLATE. WELD MARK (C) AND MARK (D) BARS TO 4 MARK (C) BARS. WELD MARK (E) BAR TO MARK (C) BARS. WELD REMAINING MARK (C) BARS TO MARK (C), MARK (C), AND MARK (D) BARS AND TOP PLATE.
 2. THE TRASH RACK AND ANTIVORTEX BAFFLE PLATE, MAY BE FABRICATED AS A UNIT, OR TRASH RACK MAY BE FABRICATED IN IDENTICAL HALVES AND ATTACHED TO BAFFLE PLATE WITH 1/2" DIAM. U BOLTS SPACED APPROXIMATELY 12 INCHES CENTER TO CENTER ALONG THE VERTICAL AND INCLINED SECTIONS OF THE MARK (C) BARS NEXT TO THE PLATE.
 3. ALL BARS ARE SMOOTH ROUND BARS.
 4. COAT WITH A RUST INHIBITIVE PAINT.



BENDING DIAGRAMS

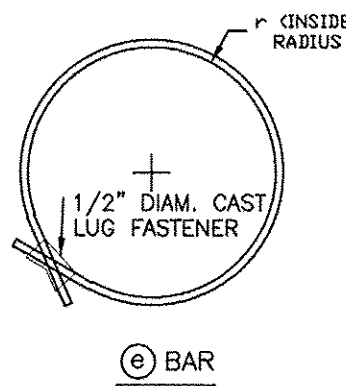
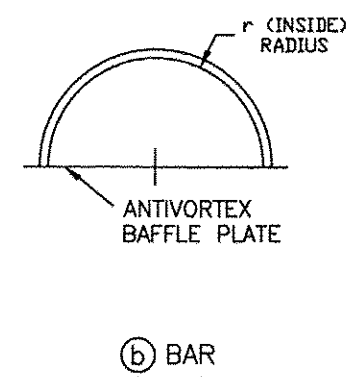
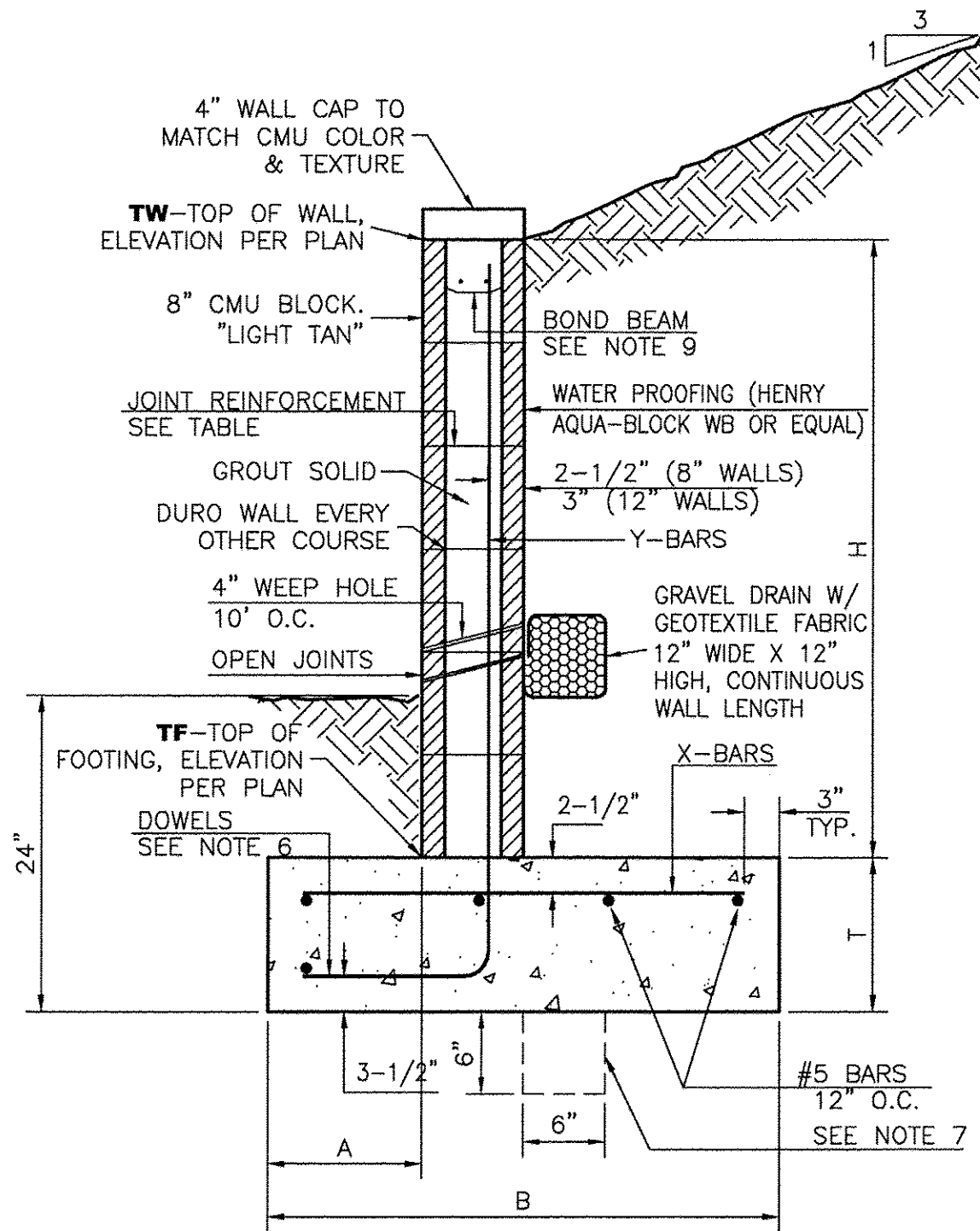


TABLE OF DIMENSIONS AND QUANTITIES												
(C) BARS 5/8" DIAMETER								ANTIVORTEX BAFFLE PLATE				
H	R	X	Y	S	O	NO.	N	L	P	F	V	
INCHES	INCHES	INCHES	INCHES	INCHES	INCHES	LENGTH	REQ'D	INCHES	INCHES	INCHES	INCHES	
18" DIAMETER CORRUGATED METAL RISER												
9	14-1/8	6	14-1/8	1	20	4'	10	11-7/16	3'	21	8	8
21" DIAMETER CORRUGATED METAL RISER												
12	9-1/4	9	18-1/2	2	20-5/8	4' 6-5/8"	12	12-3/8	4'	18	12	6
24" DIAMETER CORRUGATED METAL RISER												
15	11-3/8	12	22-3/4	2	25-3/8	5' 5-3/8"	12	14-13/16	4'-6"	24	18	9
30" DIAMETER CORRUGATED METAL RISER												
18	9-1/2	15	28-1/2	3	30	6' 4"	14	15-13/16	6'	24	21	7
36" DIAMETER CORRUGATED METAL RISER												
21	12-1/2	21	37-5/8	3	39-1/2	7'10-1/2"	16	17-5/16	7'-6"	30	30	10

TABLE OF DIMENSIONS AND QUANTITIES												
(D) BARS 5/8" DIAMETER			(C) BARS 5/8" DIAMETER			(D) BARS 5/8" DIAMETER			(E) BARS 5/8" DIAMETER			TOP PLATE
NO.	r	LENGTH	NO.	r	LENGTH	NO.	r	LENGTH	NO.	r	LENGTH	DIAM.
REQ'D	INCHES	INCHES	REQ'D	INCHES	INCHES	REQ'D	INCHES	INCHES	REQ'D	INCHES	INCHES	INCHES
18" DIAMETER CORRUGATED METAL RISER												
2	14-5/16	46	1	10	62-10	1	14-5/16	92	1	10-1/4	73	3
21" DIAMETER CORRUGATED METAL RISER												
2	18-13/16	60	1	11-1/2	72-1/4	1	18-13/16	120	1	11-3/4	82-1/2	3-1/2
24" DIAMETER CORRUGATED METAL RISER												
2	23-5/16	74	1	13	81-8	1	23-5/16	148	1	13-1/4	91-1/2	3-1/2
30" DIAMETER CORRUGATED METAL RISER												
2	29-5/16	93	1	16	100-1/2	1	29-5/16	186	1	16-1/4	111	4
36" DIAMETER CORRUGATED METAL RISER												
2	38-3/8	121-1/2	1	19	119-5	1	38-3/8	243	1	19-1/4	129	4



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:

1. ALL CONCRETE IS TO BE 4000 PSI @ 28 DAYS.
2. MINIMUM COMPACTION UNDER FOOTINGS IS TO BE 95% PER ASTM. D 1557 FOR A DEPTH OF 12" MOISTURE CONTENT IS TO BE ± 2.0%.
3. BACK FILL AGAINST WALLS IS TO BE HAND-PLACED AND COMPACTED.
4. ALL BARS ARE TO BE GRADE 60, ASTM 615.
5. TRUSS TYPE DWR-O-WALL EVERY OTHER COURSE.
6. 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.
7. PROVIDE KEY FOR 8" AND 12" WALLS WHERE H EXCEEDS 6'-0"
8. USE EITHER EXPANSION JOINTS ON 20' CENTERS OR PILASTERS EVERY 16'
9. 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".

ENGINEER'S
SEAL

RONALD R. BOHANNAN
REGISTERED PROFESSIONAL ENGINEER
NEW MEXICO
1868
4947

RONALD R. BOHANNAN
P.E. #7868

**WEST BLUFF
BUSINESS CENTER**

**GRADING AND
DRAINAGE DETAILS**

TIERRA WEST, LLC
5571 MIDWAY PARK PLACE NE
ALBUQUERQUE, NM 87109
(505) 858-3100
www.tierrawestllc.com

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GR-3

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2016061