CITY OF
Albuquerque

July 21, 1997

Martin J. Chávez, Mayor

Tamara Morgan, P.E.
Bohannan-Huston, Inc
7500 Jefferson NE
Albuquerque, NM 87109

RE: HIGH VISTA APARTMENTS (A12-D13). GRADING AND DRAINAGE PLAN SUBMITTAL FOR BUILDING PERMIT APPROVAL. ENGINEER'S STAMP DATED JULY 7, 1997.

Dear Ms. Morgan:

Based on the information provided on your July 7, 1997 submittal, the above referenced project is approved for Building Permit.

Prior to Certificate of Occupancy approval, an Engineer's Certification will be required and AMAFCA will need to accept their improvements. Please be certain to call out the number of pipes used for each curb penetration.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

Lisa Ann Manwill, P.E.
Engineering Assoc./Hyd.

c: Kurt Browning, P.E.
Andrew Garcia
File

DRAINAGE MANAGEMENT PLAN

SITE LOCATION, LEGAL DESCRIPTION, AND EXISTING CONDITIONS

THE PROPERTY IS LOCATED NORTH OF THE CALABACILLAS ARROYO AND EAST OF GOLF COURSE ROAD. THE LEGAL DESCRIPTION FOR THE HIGH VISTA APARTMENT COMPLEX IS TRACT 2A OF EAGLE RANCH FILED ON OCTOBER 11, 1985 IN BOOK C28 PAGE 23. THE SITE IS ZONED R-2 RESIDENTIAL + HOUSES, TOWNHOUSES, AND MED DENSITY APARTMENTS WITH A MAXIMUM PERMITTED DENSITY OF 30 DU/AC OR MAX FLOOR AREA RATIO OF .5. THE SITE DOES NOT FALL WITHIN A FLOOD HAZARD AREA AND IS CURRENTLY AN EMPTY LOT CONSISTING OF NATIVE VEGETAION UNCOMPACTED BY HUMAN ACTIVITY. THE SITE CONSISTS OF 13.1AC THAT CAN BE DIVIDED INTO THE FOLLOWING UNDEVELOPED AREAS AND SLOPES FOR PURPOSES OF HYDRAULIC CALCULATIONS (SEE ANALYSIS BELOW):

SLOPES	PERCENTAGE OF AREA	LAND TREATMENT TYPE
LESS THAN 10%	65%	TYPE A
10 - 20%	25%	TYPE B
GREATER THAN 20%	10%	TYPE C

THE PROPERTY RECEIVES FLOWS OF 60 CFS FROM OFFSITE THROUGH A 42" SPAN X 29" RISE ARCHED CMP CULVERT PIPE. THIS FLOW WAS OBTAINED FROM THE CONSTRUCTION PLANS FOR GOLF COURSE ROAD AT ARROYO DE LAS CALABACILLAS; PROJECT M-4079(1). THE UNDEVELOPED FLOW OF 21.4CFS (CALCULATED BELOW IN THE HYDROLOGIC ANALYSIS) PLUS THE 60CFS FROM OFFSITE COMBINE AND DISCHARGE TO THE CALABACILLAS ARROYO.

PROPOSED DEVELOPMENT AND DRAINAGE CONSIDERATIONS

THE PROPOSED DEVELOPMENT CONSISTS OF MULTI-FAMILY HOUSING WITH 27 BUILDINGS PROVIDING 264 INDIVIDUAL UNITS. DEVELOPMENT OF THE SITE WILL INCREASE THE PEAK DISCHARGE FROM APPROXIMATELY 21.4 CFS TO 48 CFS. PONDING ON THE SITE WILL NOT BE NECESSARY AS ALL FLOWS WILL BE TRANSFERRED OVERLAND TO THE PROPOSED ROADWAYS AND TRANSMITTED TO THE SOUTHEASTERN CORNER OF THE SITE. THE OFF SITE FLOWS WILL BE COLLECTED AT THE CULVERT, NEAR THE ENTRANCE TO THE SITE, AND TRANSPORTED VIA 30"-36" RCP STORM DRAIN TO THE SOUTHEASTERN CORNER OF THE SITE. THE ONSITE FLOWS WILL BE COLLECTED WITHIN 2 DOUBLE STORM INLET GRATES AND COMBINED WITH THE OFFSITE FLOWS IN A 54IN CMP STORM DRAIN LINE WHICH WILL EMPTY INTO THE CALABACILLAS ARROYO OVER A SOIL-CEMENT OUTLET STRUCTURE (TOW= 5127). THE CALABACILLAS ARROYO DOWNSTREAM CAPACITY AND IMPROVEMENTS ARE ADDRESSED IN THE EAGLE POINTE SUBDIVISION CALABACILLAS ARROYO DRAINAGE REPORT PREPARED BY BOHANNAN-HUSTON MARCH 1995 FOR SANDIA PROPERTIES. BANK IMPROVEMENTS WILL INCLUDE CONSTRUCTION OF A 370' LONG NORTHWEST WALL, 200' LONG NORTHEAST WALL, 175' LONG SOUTH WALL, AND FUTURE CONSTRUCTION OF DROP STRUCTURE #4 AS REFERENCED IN THE REPORT. THE BOTTOM OF ALL SOIL CEMENT IS AT THE EQUILIBRIUM SLOPE ELEVATION MINUS 10' FOR SCOUR, AND THE TOP OF ALL SOIL CEMENT WALLS AR AT THE NEW 100 YEAR WATER SURFACE ELEVATION PLUS THREE FEET OF FREEBOARD. TOP OF WALL ELEVATIONS SHOWN ON SHEET C6. SUFFICIENT DOWNSTREAM CAPACITY IS PROVIDED BY THE ABOVE MENTIONED IMPROVEMENTS AS STATED IN THE APPROVED EAGLE POINTE SUBDIVISION CALABACILLAS ARROYO REPORT BY BOHANNAN HUSTON DECEMBER 1994.

HYDROLOGIC ANALYSIS

THE HYOROLOGIC COMPUTATIONS THAT APPEAR IN THIS REPORT ANALYZE THE DEVELOPED DISCHARGE FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT, AS IDENTIFIED WITH THE LATEST REVISION TO CHAPTER 22.2 OF THE CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL (DPM). THE SITE FALLS WITH THE PRECIPITATION ZONE 1. THE TIME OF CONCENTRATION IS ASSUMED TO BE 0.2 HOURS. THE MINIMUM ALLOWABLE. THE LAND TREATMENT TYPES LISTED ABOVE WERE USED IN DETERMINING THE UNDEVELOPED

Qp (undeveloped) = 1.29cfs/ac(8.53ac)+2.03cfs/ac(3.28ac)+2.87cfs/ac(1.31ac)
Qp (undeveloped) = 21.4cfs

Qp (developed) = 2.03cfs/ac(2.90ac)+2.87cfs/ac(1.76ac)+4.37cfs/ac(8.44ac)
Qp (developed) = 47.8cfs

THE DEVELOPED FLOWS WILL BE DIVIDED WITH 56% BEING CONCENTRATED IN THE ROADWAY SLOPING WEST TO EAST ALONG THE SOUTHERN BOUNDARY OF THE PROJECT AND 44% BEING CONCENTRATED IN THE ROADWAY SLOPING NORTH TO SOUTH ALONG THE EASTERN EDGE OF THE PROJECT. WATER DEPTH IN EACH ROADWAY WILL BE 0.3FT TO 0.4FT. THE FLOWS WILL BE CONCENTRATED IN THE LOW POINT AT THE SOUTHEASTERN CORNER OF THE SITE WHERE 2 DOUBLE INLET STORM DRAINS WILL DRAIN THE 48CFS FLOW TO A 24IN RCP STORM DRAIN WHILE PONDING NOT GREATER THAN 0.5FT. DEPTH OF FLOW IN SD WILL NOT EXCEED 18" THEREFORE HYDRAULIC GRADE LINE IS AT 18" AS IN OPEN CHANNEL FLOW.

NOTE: ATTACHED TO THIS REPORT ARE THE GRADING PLANS. PROPOSED CONTOURS WERE NOT GENERATED IN ORDER TO AVOID CONFUSION.

INDEX OF CIVIL SHEETS

GENERAL NOTES:

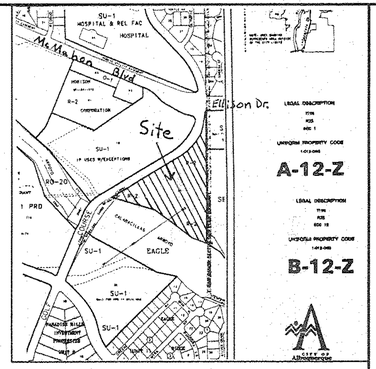
1. CONTRACTOR MUST OBTAIN A TOPSOIL DISTURBANCE PERMIT FROM THE ENVIRONMENTAL HEALTH DIVISION PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS TO REFER TO EARTHWORK SPECIFICATION AS NOTED IN THE SOILS REPORT PREPARED BY VINYARD AND ASSOCIATES, INC. DATED SEPTEMBER 20, 1995.
3. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE, AND FEDERAL DUST CONTROL MEASURES AND REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APROVALS.
4. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE LOTS INTO PUBLIC RIGHT-OF-WAY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AS PER DETAIL THIS SHEET AND WETTING THE SOIL TO KEEP IT FROM BLOWING.
5. ALL SIDEWALKS MEET ADA REQUIREMENTS. SLOPES ARE EQUAL TO OR LESS THAN 5% WITH CROSS SLOPES LESS THAN OR EQUAL TO 2%.
6. NO CONSTRUCTION OF DWELLINGS ADJACENT TO ARROYO UNTIL WALLS ARE COMPLETE.

NOTICE TO CONTRACTORS:

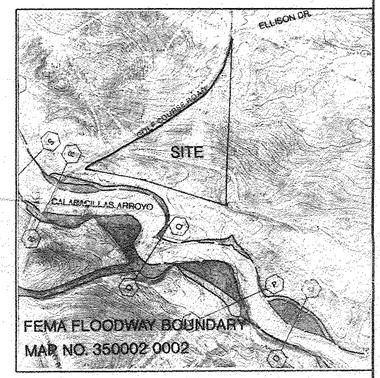
1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN THE CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HERON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATION SERVICE, 765-1234. FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL 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.
5. BACKFILL COMPACTION SHALL BE TO 95% STREET USE.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.

"BLACK 2" BENCHMARK INFORMATION:

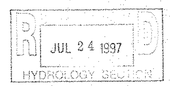
THE STATION IS LOCATED 8.5 MILES NORTHWEST OF DOWNTOWN ALBUQUERQUE. TO REACH STATION FROM INTERSECTION OF I-40 AND COORS GO NORTH ON COORS 5.8 MILES TO PARADISE BLVD. TURN LEFT. GO WEST ON PARADISE BLVD. 1.1 MILES TO GOLF COURSE RD. 1.3 MILES TO MCMAHON BLVD., AND TO STATION ON LEFT.
PLANE COORDINATES: X=372,920.43 Y=1,530,241.52
ELEV= 5213.926' GRID AZIMUTH= 32° 39' 52"
LAT= 35° 12' 19.12815" LONG= 106° 40' 31.44188"



LOCATION MAP
ZONE ATLAS MAP NO. A-12-Z, B-12-Z
NO SCALE



FLOOD HAZARD BOUNDARY MAP
FEMA FLOODWAY BOUNDARY MAP NO. 350002 00002
NO SCALE

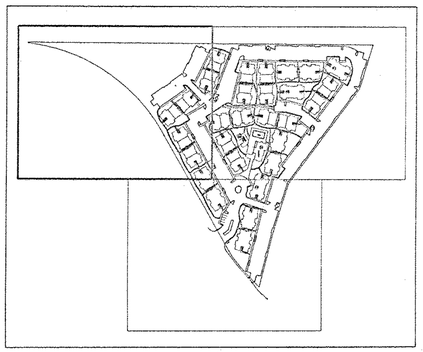


SHEET C1: DRAINAGE AND PAVING NOTES

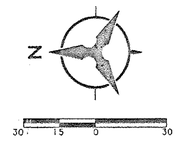
BOHANNAN-HUSTON INC.
ENGINEERS • PLANNERS • PHOTOGRAMMETRISTS • SURVEYORS • LANDSCAPE ARCHITECTS
ALBUQUERQUE LAS CRUCES SANTA FE

USERNAME= CDP\[C9627A2452.PADJGNOTES.GRF

BUILD SOIL CEMENT AS PER DETAIL SHEET
100-YEAR WATER SURFACE
PROPERTY LINE
UNIMPROVED SIMON AND LI PRUDENT LINE
NEW PRUDENT LINE WITH IMPROVEMENTS
FUTURE DROP STRUCTURE
POOL
CLUBHOUSE PAD=5141.00
SCALE: 1" = 50'
LEGEND
PROJECT BOUNDARY
EXISTING CONTOUR
EXISTING SPOT ELEVATION
PROPOSED SPOT ELEVATION
DIRECTION OF FLOW
PROPOSED PIPE PENETRATION
PROPOSED RETAINING WALL
PROPOSED GARDEN WALL
ROOF DRAIN LOCATION
TC=TOP OF CURB, FL=FLOW LINE
TA=TOP OF ASPHALT
NORTHWEST RIP-RAP WALL
EXISTING AMAFCA ACCESS AND DRAINAGE EASEMENT
100-YEAR WATER SURFACE
GOLF COURSE ROAD
GOLF COURSE ROADWAY IMPROVEMENTS CONSTRUCTED UNDER COA WO #573681
42" SPAN X 29" RISE ARCHED CMP CULVERT PIPE. MAX FLOW = 60CFS. SEE AREA MAP.
PROPERTY LINE
NOTE:
SEE SHEETS C4 AND C5 FOR ADDITIONAL LINES TO BE SHOWN IN THE CALABACILLAS ARROYO.
GOLF COURSE ROADWAY IMPROVEMENTS CONSTRUCTED UNDER COA WO #573681
7/24/97
JUL 24 1997
HYDROLOGY SECTION
SHEET C2: OVERALL DRAINAGE PLAN
BOHANNAN-HUSTON INC.
ENGINEERS • PLANNERS • PHOTOGRAMMETRISTS • SURVEYORS • LANDSCAPE ARCHITECTS
ALBUQUERQUE LAS CRUCES SANTA FE



KEYMAP
NO SCALE



SCALE: 1" = 30'

LEGEND

PROJECT BOUNDARY	
EXISTING CONTOUR	
EXISTING SPOT ELEVATION	○5124.5
PROPOSED SPOT ELEVATION	●5160
DIRECTION OF FLOW	
PROPOSED PIPE PENETRATION	
PROPOSED RETAINING WALL	
PROPOSED GARDEN WALL	
ROOF DRAIN LOCATION	

TC=TOP OF CURB, FL=FLOW LINE
TA=TOP OF ASPHALT

SEE SHEET C-5 FOR SECTION C-C

GOLF COURSE RD. IMPROVEMENTS TO BE BE CONSTRUCTED UNDER COA WO #573681 IMPROVEMENTS SHOWN ON THESE PLANS ARE FOR INFORMATION ONLY. ACTUAL CONSTRUCTION TO BE PERFORMED UNDER WORK ORDER DOCUMENTS.

GOLF COURSE ROAD

ELLISON

PAD=5143.50

PAD=5147.80

PAD=5148.80

PAD=5149.00

PAD=5148.00

PAD=5147.00

PAD=5146.00

TYPE I

GARDEN WALL IS 1' OFF BUILDING

JUL 24 1997
HYDROLOGY SECTION

SHEET C3: GRADING PLAN

BOHANNAN-HUSTON INC.
ENGINEERS • PLANNERS • PHOTOGRAMMETRISTS • SURVEYORS • LANDSCAPE ARCHITECTS
ALBUQUERQUE LAS CRUCES SANTA FE

USERNAME: CDP:[C96273A2452.PADJGRADE1.GRF

EXISTING CONTROL STRUCTURE BUILT UNDER AMAFCA PLANS FOR CONSTRUCTION OF CALABACILLAS ARROYO GRADE CONTROL STRUCTURES, APPROVED FOR FOR CONSTRUCTION BY LARRY BLAIR FEB 15, 1991. CONTACT KEITH DONNELLY AT BOHANNAN HUSTON OR AMAFCA FOR COPY OF PLANS IF NECESSARY.

TEMPORARY DRAINAGE EASEMENT

SEE DETAIL SHEET 6 FOR TIE IN DETAIL

SHADED AREA IS EXISTING SOIL CEMENT

SEE DETAIL SHEET 6 FOR SECTIONS A-A & B-B

BUILD SOIL CEMENT AS PER DETAIL SHEETS 6 & 6A

100-YEAR WATER SURFACE

PROPERTY LINE

AMAFCA DRAINAGE EASEMENT

SIMONS AND LI PRUDENT LINE

CALABACILLAS ARROYO

NEW PRUDENT LINE AFTER IMPROVEMENTS

PAD=5138.00
PAD=5136.50
PAD=5139.00
PAD=5137.50
PAD=5140.00
PAD=5139.50
PAD=5137.50
PAD=5135.60
PAD=5135.75
PAD=5139.00
PAD=5139.00
PAD=5140.00
PAD=5140.00
PAD=5143.00 EXERCISE BLDG.
CLUBHOUSE PAD=5141.00
PAD=5146.00
PAD=5145.00
PAD=5145.00
PAD=5144.00
PAD=5143.10
PAD=5142.10
PAD=5142.10
PAD=5141.10
PAD=5137.40
PAD=5136.40
PAD=5132.40
PAD=5138.40
PAD=S141.50
PAD=S142.50
PAD=S143.50

KEYMAP
NO SCALE

SCALE: 1" = 30'

LEGEND

PROJECT BOUNDARY	
EXISTING CONTOUR	
EXISTING SPOT ELEVATION	○5124.5
PROPOSED SPOT ELEVATION	●35.60
DIRECTION OF FLOW	
PROPOSED PIPE PENETRATION	
PROPOSED RETAINING WALL	
PROPOSED GARDEN WALL	
ROOF DRAIN LOCATION	

TC=TOP OF CURB, FL=FLOW LINE
TA=TOP OF ASPHALT

7/24/97

AMAFCA APPROVAL

ENGINEER — DATE 7-28-97

SHEET C4: GRADING PLAN

JUL 24 1997

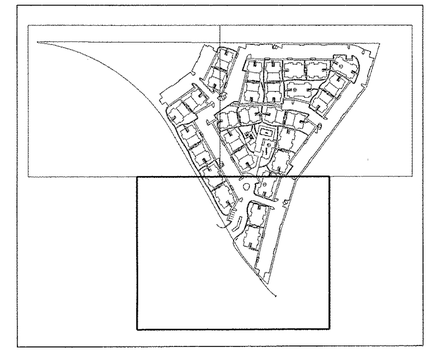
BOHANNAN-HUSTON INC.
ENGINEERS • PLANNERS • PHOTOGRAMMETRISTS • SURVEYORS • LANDSCAPE ARCHITECTS
ALBUQUERQUE LAS CRUCES SANTA FE

USERNAME: CDP:(C96273A2452.PADJGRADE2.GRF

GOLF COURSE RD. IMPROVEMENTS TO BE CONSTRUCTED UNDER COA WO # 573681. IMPROVEMENTS SHOWN ON THESE PLANS ARE FOR INFORMATION ONLY. ACTUAL CONSTRUCTION TO BE PERFORMED UNDER WO DOCUMENTS.

NOTE:

SEE SHEET C4 FOR ADDITIONAL LINES TO BE SHOWN IN THE CALABACILLAS ARROYO.



KEYMAP
NO SCALE

N

30 15 0 30

SCALE: 1" = 30'

LEGEND

PROJECT BOUNDARY	
EXISTING CONTOUR	
EXISTING SPOT ELEVATION	○5124.5
PROPOSED SPOT ELEVATION	●3660
DIRECTION OF FLOW	
PROPOSED PIPE PENETRATION	
PROPOSED RETAINING WALL	
PROPOSED GARDEN WALL	
ROOF DRAIN LOCATION	⊕

TC=TOP OF CURB, FL=FLOW LINE
TA=TOP OF ASPHALT

7/24/97

AMAFCA APPROVAL

7-28-97

ENGINEER DATE

JUL 24 1997

SHEET C5: GRADING PLAN

BOHANNAN-HUSTON INC.
ENGINEERS • PLANNERS • PHOTOGRAMMETRISTS • SURVEYORS • LANDSCAPE ARCHITECTS
ALBUQUERQUE LAS CRUCES SANTA FE

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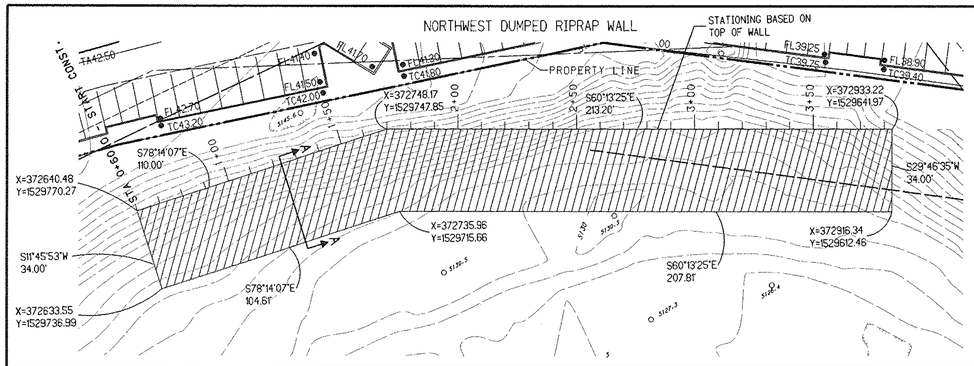
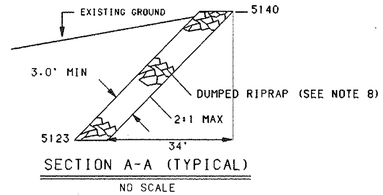
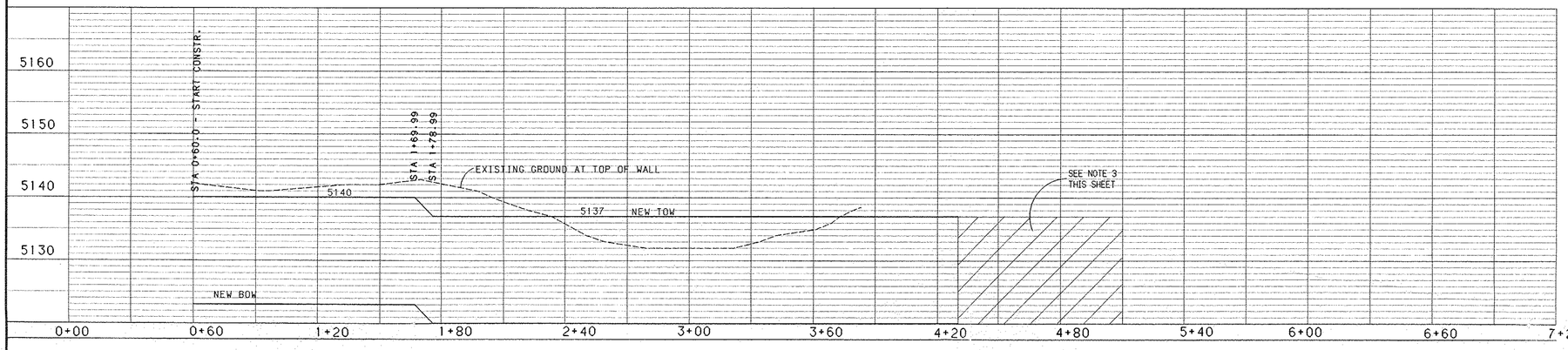




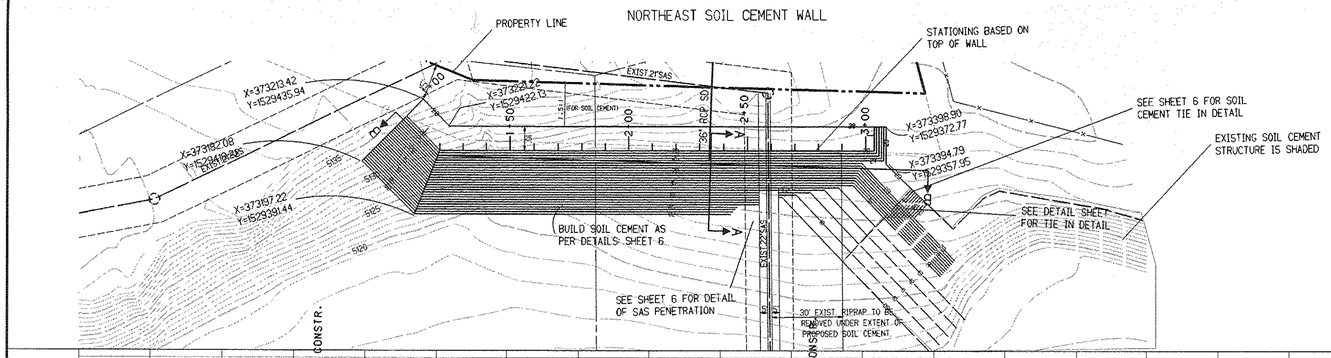
SECTION A-A (TYPICAL)

NO SCALE



NOTES

1. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITY LOCATIONS AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
2. THE DUMPED RIPRAP SITE WILL BE PROVIDED ADJACENT TO THE CONSTRUCTION OF THE WALL. DUMPED RIPRAP SHALL HAVE A MINIMUM DIAMETER OF 1.5' AND SHALL BE PLACED ON THE EXISTING ARROYO BANK SLOPE AND BELOW THE ARROYO ON THE EXISTING ARROYO BANK SLOPE AND BELOW THE ARROYO BE AS SHOWN ON THE PLANS. ALL RIP RAP TO BE INSPECTED AND APPROVED BY AMAFCA PRIOR TO USE.
3. THE ESTIMATED NECESSARY DUMPED RIPRAP QUANTITY IS 1570 CY. IF MORE RIPRAP IS AVAILABLE IT IS TO BE USED TO EXTEND THE PROPOSED WALL TO THE EAST AS SHOWN UNTIL ALL RIPRAP IS USED.
4. IT SHALL BE THE CONTRACTORS SOLE RESPONSIBILITY FOR ALL COORDINATION BETWEEN THE VARIOUS PRIVATE OR CITY OWNED UTILITIES AFFECTED BY THE CONSTRUCTION OF THIS PROJECT.
5. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS.
6. AFTER CONSTRUCTION OF RIPRAP AND SOIL CEMENT WALL. CONTRACTOR SHALL BACKFILL TO ORIGINAL EVELVATIONS.
7. SOIL CEMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPT. STANDARD SPECIFICATIONS, 1994 EDITION.. ADDED SECT. 633 (SEE PAGE C6B). DISTURBED AREAS SHALL BE RESEEDED PER SPECIFICATION 632 (SEE PAGE C6B).
8. DUMPED RIP RAP STOCKPILE EXISTS ONSITE. NO SPECIFICATIONS FOR GRADATION AS THE WALL MAY BE TEMPORARY.



7/24/97

AMAFCA APPROVAL

ENGINEER DATE

JUL 24 1997

SHEET C6A: CALABACILLAS ARROYO IMPROVEMENTS

SCALE: 1" = 30' (HORIZ.)
1" = 10' (VERT.)

BOHANNAN-HUSTON INC.
ENGINEERS • PLANNERS • PHOTOGRAMMETRISTS • SURVEYORS • LANDSCAPE ARCHITECTS
ALBUQUERQUE LAS CRUCES SANTA FE

USERNAME: CDP:EC96273A2452.PAD]DETAILS-CALABACILLAS2.GRF