CITY OF ALBUQUERQUE

September 29, 2016

Richard J. Berry, Mayor

David Soule, P.E.
Rio Grande Engineering
P.O. Box 93924
Albuquerque, NM 87199

RE: Legacy NAA Apartments
Grading and Drainage Plan & Report
Engineer's Stamp Date 9-15-2016 (File: C18D064B)

Dear Mr. Soule:

Based upon the information provided in your submittal received 9-19-2016, the above-referenced plan is approved for Preliminary Plat Approval (#1009881). It is approved for ESC Building Permit (and ESC Grading Permit) with the following conditions:

1. Ensure that the Contractor receives the modified grate detail (Std Drawing #2220) to use on this project.
2. Ensure that the Contractor receives a legible version of the detail sheet.
3. The placement of the inline drains which was referenced in our previous review letter will be reviewed at CO.

Please attach a copy of this approved plan in the construction sets when submitting for a building permit. Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Abiel Carrillo, P.E.
Principal Engineer, Planning Dept.
Development Review Services

Orig: Drainage file

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: LEGACY NAA APARTMENT Building Permit #: _____ City Drainage #: C18-d064B

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

Legal Description: LOTS 4-10 &23-29 BLOCK 28, TRACT A, UNT B NORTH ALB ACES

City Address: OAKLAND BETWEEN SAN PEDRO AND LOUISIANA

Engineering Firm: RIO GRANDE ENGINEERING Contact: DAVID SOULE

Address: PO BOX 93924, ALBUQUERQUE, NM 87199

Phone#: 505.321.9099 Fax#: 505.872.0999 E-mail: DAVID@RIOGRANDEENGINEERING.COM

Owner: VANDY INVESTMENTS,LLC Contact: _____

Address: 6501 EAGLE ROCK

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

Architect: Rich Barber Contact: _____

Address: _____

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

Surveyor: CONSTRUCTION SURVEY TECHNOLOGIES Contact: JOHN GALLEGOS

Address: _____

Phone#: 917.8921 Fax#: _____ E-mail: _____

Contractor: _____ Contact: _____

Address: _____

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

TYPE OF SUBMITTAL:

- x DRAINAGE REPORT
- x DRAINAGE PLAN 1st SUBMITTAL
- ____ DRAINAGE PLAN RESUBMITTAL
- ____ CONCEPTUAL G & D PLAN
- X GRADING PLAN
- ____ EROSION & SEDIMENT CONTROL PLAN (ESC)
- ____ ENGINEER'S CERT (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEER'S CERT (TCL)
- ____ ENGINEER'S CERT (DRB SITE PLAN)
- ____ ENGINEER'S CERT (ESC)
- ____ SO-19
- ____ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ____ SIA/FINANCIAL GUARANTEE RELEASE
- X PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D APPROVAL
- ____ S. DEV. FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY (PERM)
- ____ CERTIFICATE OF OCCUPANCY (TCL TEMP)
- ____ FOUNDATION PERMIT APPROVAL
- x BUILDING PERMIT APPROVAL
- x GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ GRADING CERTIFICATION

- ____ SO-19 APPROVAL
- ____ ESC PERMIT APPROVAL
- ____ ESC CERT. ACCEPTANCE
- ____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED: ____ Yes X No ____ Copy Provided

DATE SUBMITTED: 9/16/16 By: _____

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the followin

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

UPDATED
DRAINAGE REPORT

For

LEGACY NAA APARTMENTS

Albuquerque, New Mexico

Prepared by

Rio Grande Engineering
PO Box 93924
Albuquerque, New Mexico 87199

SEPTEMBER 2016

David Soule P.E. No. 14522

TABLE OF CONTENTS

Appendix

Map

PURPOSE

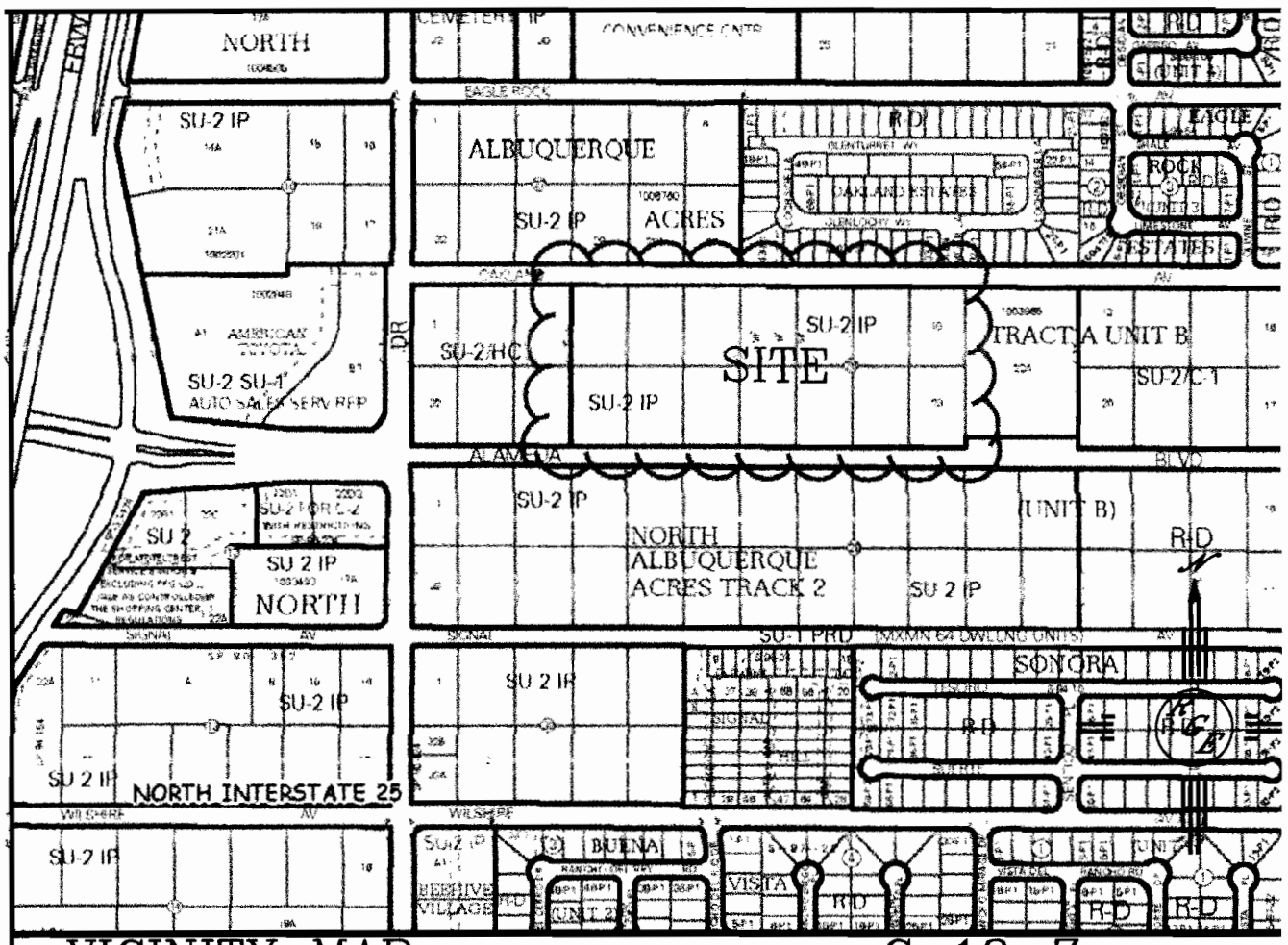
The purpose of this report is to provide the Drainage Management Plan for the development of a 12.41 acre multi family project located on Alameda Boulevard between San Pedro and Louisiana NE. This plan was prepared in accordance with the City of Albuquerque design regulations, utilizing the City of Albuquerque's Development Process Manual drainage guidelines, and HYDROCAD. This report will demonstrate that the grading does not adversely affect the surrounding properties, nor the upstream or downstream facilities.

INTRODUCTION

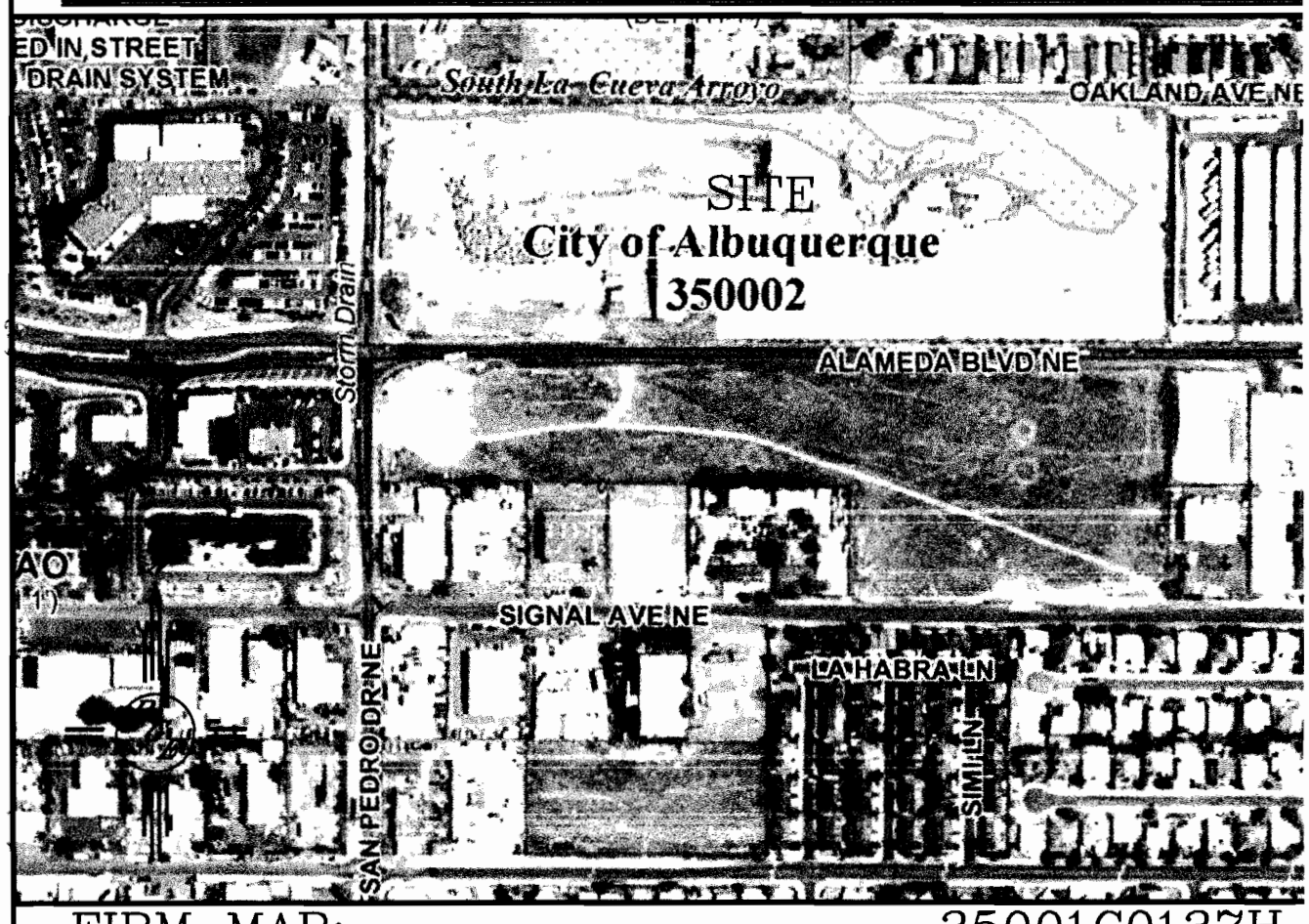
The subject of this report, as shown on the Exhibit A, is a 12.41-acre parcel of land located on the south side of Oakland Avenue and the north side of Alameda Boulevard between San Pedro and Louisiana. The legal description of this site is Lots 4-10 and 23-29, block 28, tract A, unit B, North Albuquerque Acres. As shown on FIRM map35013C0137H, the majority of the entire site is located within Flood Zone X, a recent LOMR was approved removing a previous flood zone AE-1 foot. The site has had significant grading activities upon it over the past 10 years. The site is not in native condition. Due to the upstream construction, the site is not affected by any upland flow. The site free discharges to the west. The development of the site will require the site to discharge at a rate equal to or less than the fully developed conditions assumed for this site in the governing North Albuquerque Acres Master Drainage Plan (NAAMDP), which relevant excerpts can be found in appendix A.

EXISTING CONDITIONS

The site currently does have structures on it and has been impacted by human development over the years. The site was most recently an auto salvage and parts yard. The site is not impacted by any upland flows. The site currently discharges all of its flow to the North West



VICINITY MAP: C-18-Z



FIRM MAP: 35001C0137H

LEGAL DESCRIPTION:

Corner of the site. The site is located within basins 117.2 and 117.3 of the NAAMDP. The NAAMDP design analysis has been modified by the Eagle Rock drainage plan. The diversion of the upper 57% of basin 117.2 was designed with the construction of Oakland estates Subdivision. The upland properties have been designed to drain to the storm drain provided within Oakland and Alameda. The recently constructed San Pedro and Alameda storm drain were designed to convey the developed flow from this site. Excerpts of these plan are located in appendix A

PROPOSED CONDITIONS

The proposed improvements consist of a new multi family apartment complex with associated open space and paved parking areas. The drainage is conveyed to three separate discharge point. The site grading was designed utilizing a several onsite water quality ponds that fill and then 'spill' into either the onsite storm drain or into the parking lot. An onsite drainage basin map is located in appendix B. The basins have been color coded to better differentiate them. A spreadsheet calculating the hydrology is located in appendix B. An onsite storm drain map with drainage labels is also located within appendix B. The slopes for each reach have been labeled and the capacities for the pipes are confirmed in appendix C. The site generates flow that exceeds the allowable discharge rates specified within the NAA master drainage plan. To reduce the peak flow to less than allowable several of the ponds have been sized to retain the entire 100-year, 10-day volume generated, therefore removing that basin from contributing flow. The remaining peak exceedence is reduced by the introduction of orifice plates in the two western most inlets. The parking lots have been designed to act as detention basins. The stage storage calculation is located within appendix D. The detention basin was modeled utilizing AHYMO. As shown from the model in appendix D the detention basins reduce the developed site discharge to less than allowed.

As shown on the storm drain map, and site hydrology calculations, the allowable discharge to Oakland upstream of the diversion to eagle rock is 12.23 cfs. We propose to discharge 9.83 cfs. The allowable discharge to Oakland below the diversion, which drains to the san Pedro storm drain, is allowed to be 12.23 cfs. Out site will discharge 13.44 cfs, while this is 1.11 cfs higher than allowed, it enters into the san Pedro storm drain at lower down stream point that anticipated. The allowable discharge to Alameda is 24.46. This site will discharge 23.27 cfs, which is less than allowed. The discharge rates include the roadway frontage captured by the new inlets. The combined discharge to alameda and Oakland that contribute to the san Pedro storm drain is less than allowed. The existing double D inlets on Alameda are removed and replaced with double A inlets. .

The site is required to retain on site 9,413 cubic feet of water for the first flush. This site will retain onsite 15,562 cubic feet of water, which is 6149 cubic feet greater.

SUMMARY AND RECOMMENDATIONS

This project is a development of a multi family complex with the North Albuquerque Acres Master Drainage plan. The development is consistent with the land use assumptions of the plan. The surrounding development altered the upland and onsite basin by the creation of a diversion from Oakland to Eagle rock. Our plan conforms to this diversion. Our discharge will enter the downstream storm drain where it was generally anticipated. The inlets, pipes and roadways have been shown to provide the required capacity. The onsite flows are reduced to allowable by ponding certain areas and throttling the flow by creating a parking lot detention pond utilizing orifice plate to govern the discharge. The site has been designed in accordance with City of Albuquerque Drainage ordinance. This drainage plan and report conforms to the governing drainage regulations of the City. Since the effected area site encompasses more than 1 acre, a NPDES permit will be required prior to any construction activity.

APPENDIX A

North Albuquerque Acres Master Drainage Plan

And

Excerpts of Oakland diversion map

And

San Pedro Storm drain design excerpts

FINAL
NORTH ALBUQUERQUE ACRES
MASTER DRAINAGE PLAN

Prepared For:

City of Albuquerque

Prepared By:

Resource Technology, Inc.

ENGINEERS AND ENVIRONMENTAL SCIENTISTS
1720-B Randolph Road SE, Albuquerque, NM 87106
Telephone (505) 243-7300
Fax (505) 243-7400
rti@nmia.com

- Commercial/Industrial (C/I): The area west of Louisiana Boulevard, north of Modesto Avenue and east of I-25 would develop as high density commercial and industrial. Also used for Paseo del Norte Corridor
- Medium Density Industrial (MI): Campus type commercial/office facilities and APS schools sites.
- Sandia Tribal Lands (ST): Sandia tribal lands south of Tramway Road and north of the Sandia Pueblo Grant Boundary were allocated land treatments consistent with moderate levels of development even though there are no current plans to develop this area.

The relative weight of each type of Land Treatment is shown in Table 2.

TABLE 2

FUTURE FULL DEVELOPMENT HYDROLOGIC CONDITION ASSUMPTIONS

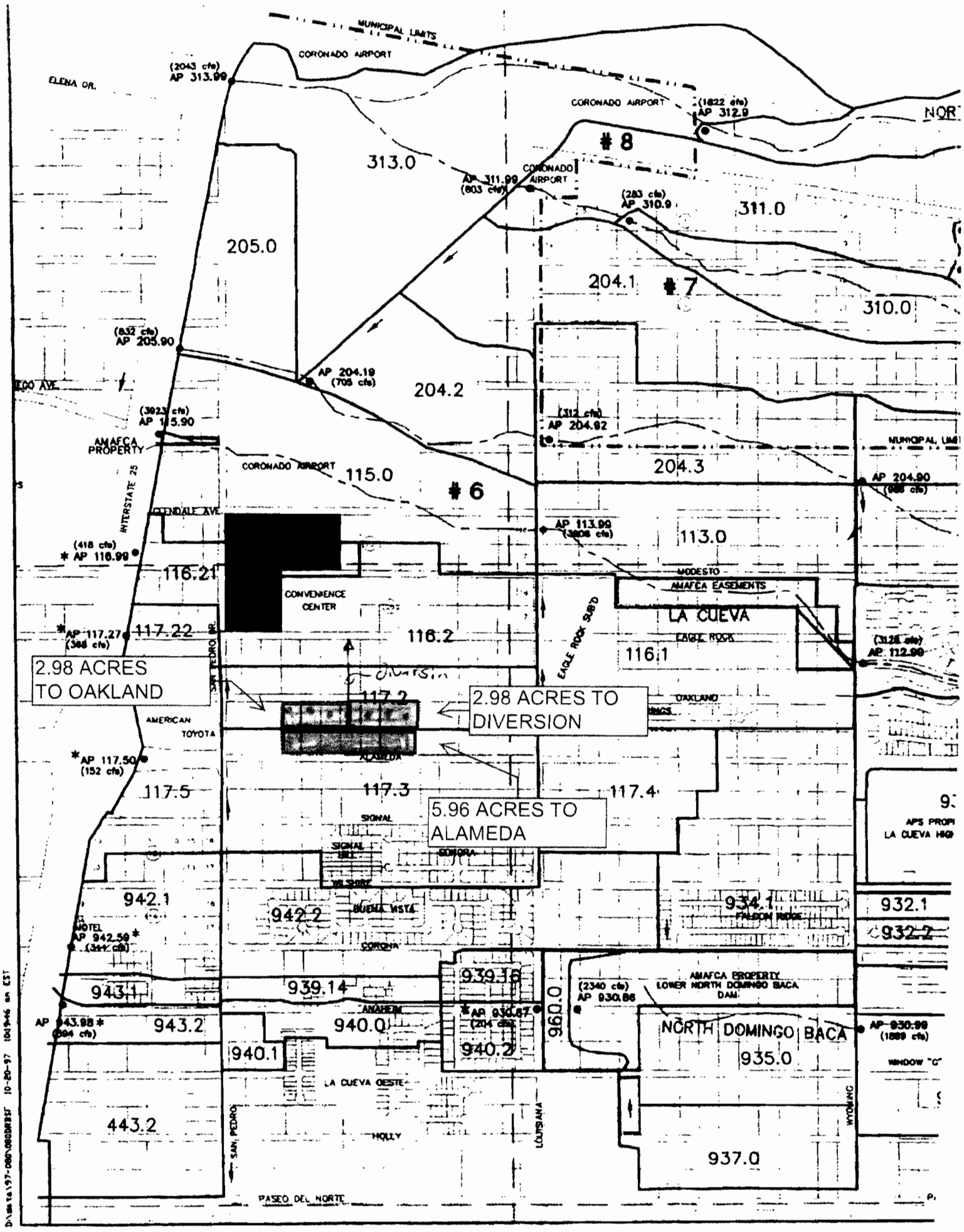
	Land Treatments (%)			
	A	**B**	**C**	**D**
Sandia Heights/Tramway (SH/TB)	20	40	5	35
North Albuquerque Acres (NAA)	22	23	38	17
Low Density Residential (LR)	20	20	34	26
Residential (R)	0	34	16	50
High Density Residential (HR)	0	25	15	60
Commercial/Industrial (C/I)	0	20	10	70
Medium Density Industrial (MI)	0	20	30	50
Sandia Tribal Lands (ST)	20	20	40	20
Primrose Pointe (PP)	0	40	20	40

TABLE A-2 (cont.)

LA CUEVA ARROYO SUB-BASIN CHARACTERISTICS

Basin ID	Hydrologic Condition	Basin Area (mi^2)	Land Treatment (%)				TP (hrs)
			A	B	C	D	
113*	Existing	.1136	80	0	15	5	133
	Future	.1000	0	25	15	60	.133
115*	Existing	.1337	80	0	15	5	.133
	Future	.1202	0	26	12	62	.133
116*	Existing	.1309	80	0	5	15	.133
116.1	Future	.1000	0	25	15	50	.133
116.2	Future	.0719	0	25	15	50	.133
116.21	Future	.0344	0	40	20	40	.133
[illegible]	Existing	1391	73	0	7	20	.22
	Future	.0500	0	34	16	50	.133
117.21*	Existing	.0234	0	34	16	50	.133
117.22*	Future	.0156	0	20	10	70	.133
117.3*	Existing	.0863	65	5	15	15	.133
	Future	.1172	0	34	16	50	.133
117.31*	Existing	0250	0	34	16	50	.133
117.32*	Existing	0090	0	34	16	50	.133
117.4*	Existing	0750	85	0	5	10	.133
	Future	.0512	0	25	15	60	.133
117.5*	Existing	.0550	0	10	20	70	.133
	Future	.0550	0	10	20	70	.133
118	Existing	.0649	0	20	10	70	.133
	Future	.0649	0	20	10	70	.133
118.1	Existing	.0306	75	5	10	10	.133
	Future	.0306	0	20	30	50	.133
119	Existing	.0549	0	20	10	70	.133
	Future	.0549	0	20	10	70	.133
120	Existing	.0268	50	0	0	50	.133
	Future	.0268	0	20	10	70	.133
121	Existing	.0489	80	0	15	5	.133
	Future	.0489	0	20	10	70	.133

*Modified for COA NAA MDP 9/97


MUNICIPAL LIMITS
CORONADO AIRPORT
ELENA DR.
(2043 cfs)
AP 313.99
CORONADO AIRPORT
(1822 cfs)
AP 312.9
NOR
8
313.0
AP 311.99
(803 cfs)
CORONADO AIRPORT
(283 cfs)
AP 310.9
311.0
205.0
204.1
7
310.0
(832 cfs)
AP 205.90
AP 204.19
(705 cfs)
204.2
EGO AVE
(3923 cfs)
AP 115.90
(312 cfs)
AP 204.92
AMAFCA
PROPERTY
CORONADO AIRPORT
115.0
6
204.3
MUNICIPAL LIMI
AP 204.90
(988 cfs)
INTERSTATE 25
GLENDALE AVE
AP 113.99
(3606 cfs)
113.0
(418 cfs)
AP 116.99
116.21
MODESTO
AMAFCA EASEMENTS
CONVENIENCE
CENTER
LA CUEVA
EAGLE ROCK
AP 117.27
(366 cfs)
117.22
116.2
EAGLE ROCK SUBD
116.1
(3128 cfs)
AP 112.90
2.98 ACRES
TO OAKLAND
2.98 ACRES TO
DIVERSION
OAKLAND
AMERICAN
TOYOTA
AP 117.50
(152 cfs)
117.5
117.3
117.4
5.96 ACRES TO
ALAMEDA
SIGNAL
SONORA
942.1
942.2
934.1
932.1
932.2
MOTEL
AP 942.59
(384 cfs)
939.16
939.14
960.0
(2340 cfs)
AP 930.86
AMAFCA PROPERTY
LOWER NORTH DOMINGO BACA
DAM
943.1
AP 943.88
(284 cfs)
943.2
940.0
AP 930.87
(284 cfs)
940.2
NORTH DOMINGO BACA
935.0
AP 930.99
(1889 cfs)
940.1
LA CUEVA OESTE
443.2
HOLLY
937.0
SAN PEDRO
LOUISIANA
WYOMING
PASEO DEL NORTE

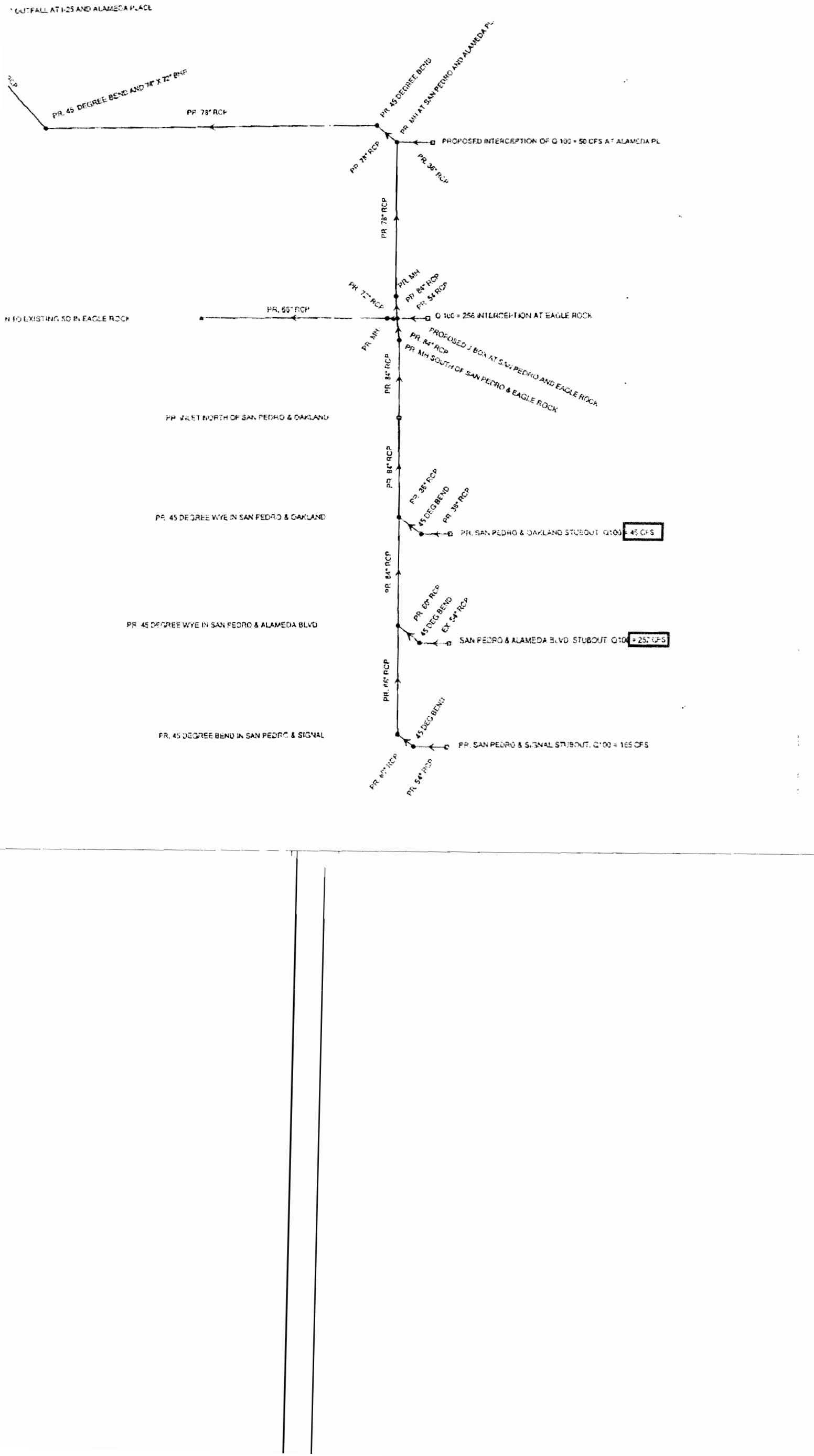
DESIGN ANALYSIS REPORT
FOR
SAN PEDRO STORM DRAIN PROJECT
CITY PROJECT NO. 5304.91

Prepared by:
Thompson Engineering Consultants, Inc.
P.O. Box 65760
Albuquerque, NM 87193

January 2010

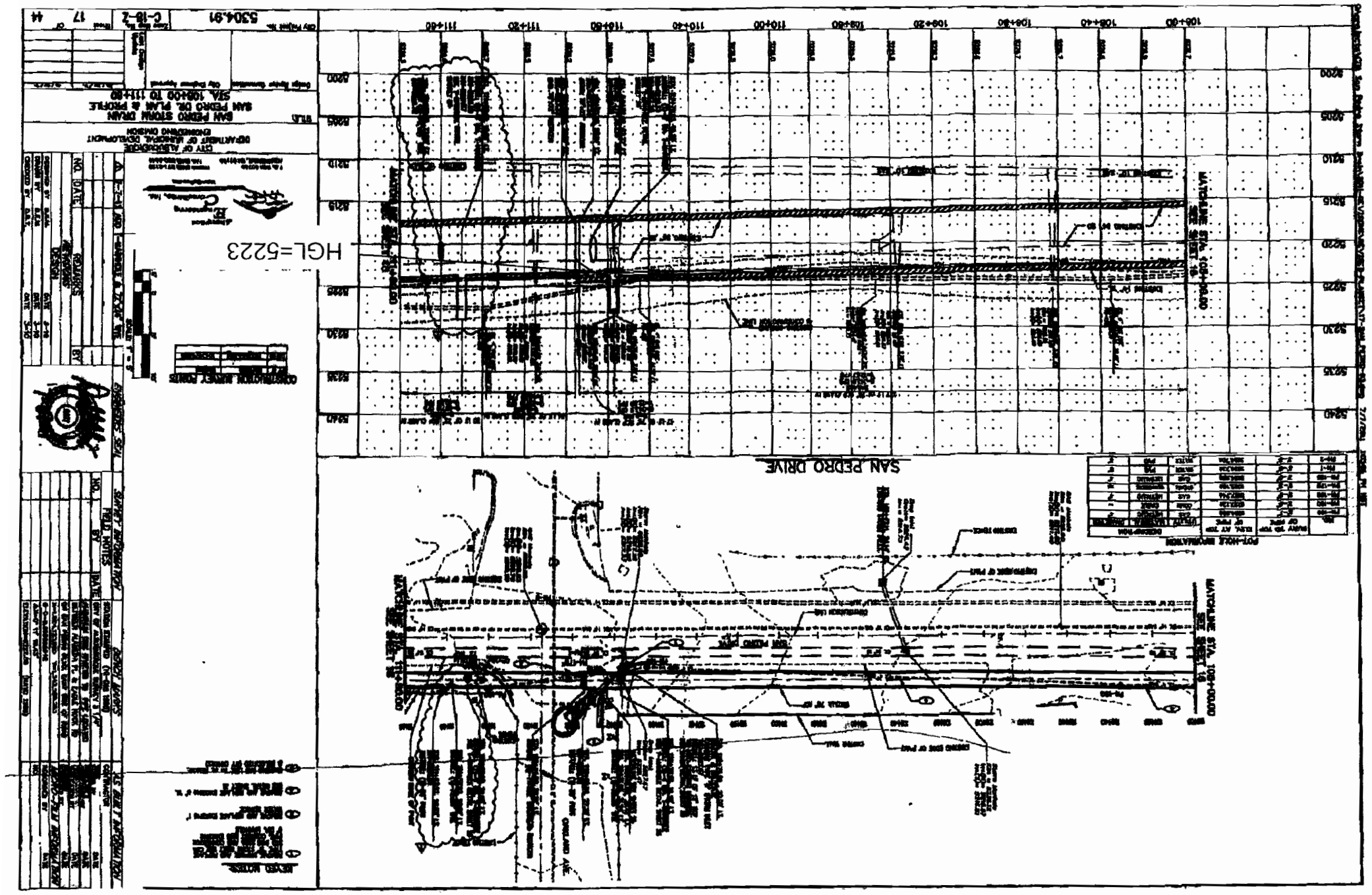
San Pedro Storm Drain

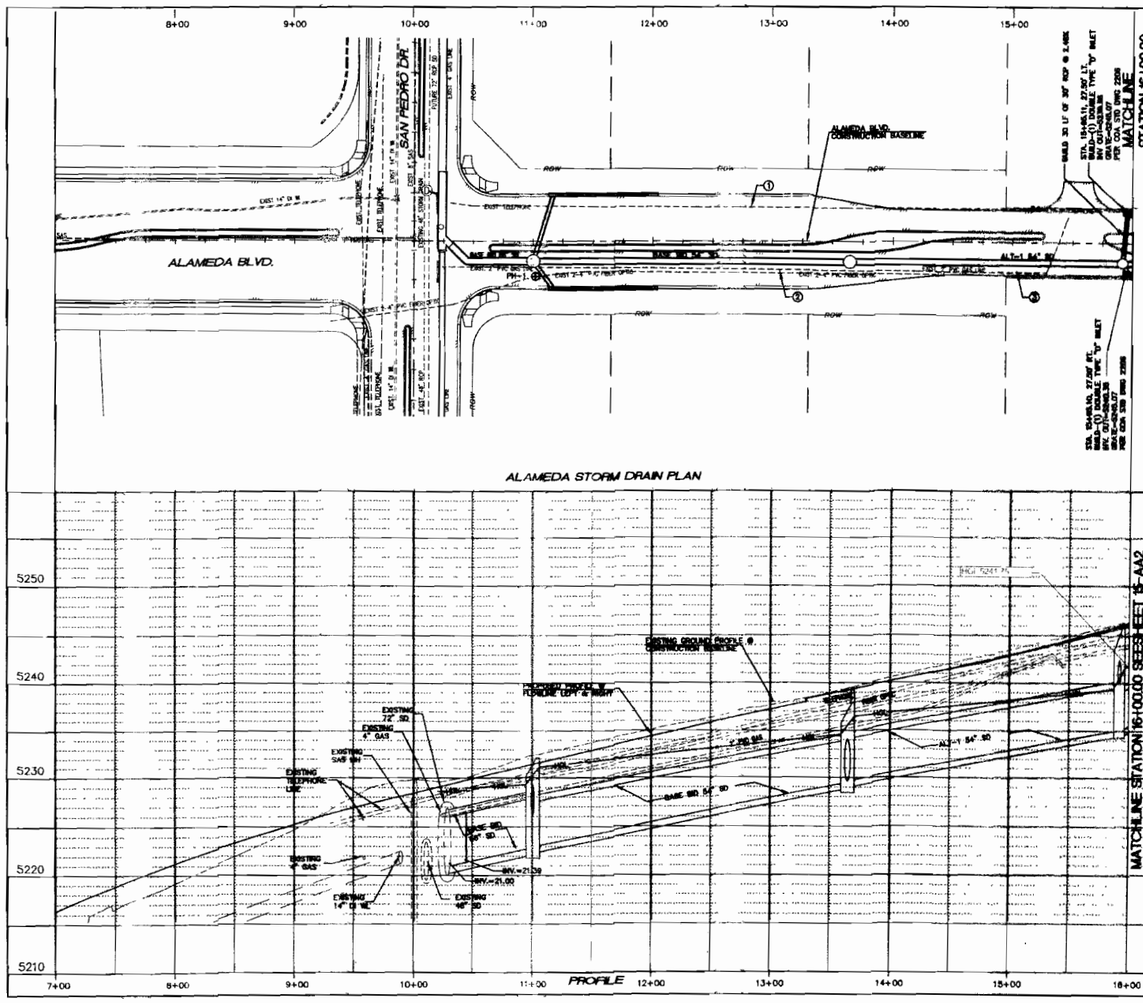
Proposed Single Pipe System



DOT Report (San Pedro SD - Final Single Pipe System with changes from coa.stc)

Label	-Node- Upstream Downstream	Conduit Description	Slope (Calculated) (ft/ft)	Length (ft)	Manning's n	Flow (ft^3/s)	Velocity (Average) (ft/s)	-Ground- Upstream Downstream (ft)	-Invert- Upstream Downstream (ft)	-HGL- Upstream Downstream (ft)
PR. 66" RCP	PR. 45 DEGREE BEND IN SAN PEDRO & SIGNAL	Circular Pipe - 66.0 in	0.006	532	0.013	165	6.94	5230.42	5222.97	5229.42
	PR. 45 DEGREE WYE IN SAN PEDRO & ALAMEDA BLVD							5229.65	5219.8	5228.13
PR. 84" RCP	PR. 45 DEGREE WYE IN SAN PEDRO & ALAMEDA BLVD.	Circular Pipe - 84.0 in	0.005	525	0.013	417	12.96	5229.65	5219.8	5225.46
	PR. 45 DEGREE WYE IN SAN PEDRO & OAKLAND							5228	5217.29	5223.93
PR. 84" RCP	PR. 45 DEGREE WYE IN SAN PEDRO & OAKLAND	Circular Pipe - 84.0 in	0.005	139	0.013	462	13.62	5228	5217.29	5223.55
	PR. INLET NORTH OF SAN PEDRO & OAKLAND							5226.12	5216.57	5223.01
PR. 84" RCP	PR. INLET NORTH OF SAN PEDRO & OAKLAND	Circular Pipe - 84.0 in	0.005	335	0.013	462	13.38	5226.12	5216.57	5222.46
	PR. MH SOUTH OF SAN PEDRO & EAGLE ROCK							5224.23	5214.89	5220.83
PR. 84" RCP	PR. MH SOUTH OF SAN PEDRO & EAGLE ROCK	Circular Pipe - 84.0 in	0.006	31	0.013	462	15.09	5224.23	5214.89	5220.53
	PROPOSED J-BOX AT SAN PEDRO AND EAGLE ROCK							5224.03	5210.5	5220.1
PR. 84" RCP	PROPOSED J-BOX AT SAN PEDRO AND EAGLE ROCK	Circular Pipe - 84.0 in	0.009	32	0.013	393	16.57	5224.03	5210.5	5215.72
	PR. MH							5223.95	5210.22	5215.94
PR. 78" RCP	PR. MH	Circular Pipe - 78.0 in	0.01	505	0.013	393	17.57	5223.95	5210.22	5215.52
	PR. MH AT SAN PEDRO AND ALAMEDA PL							5221.4	5205	5212.69
PR.72" RCP	PR. 45 DEGREE BEND AND 78" X 72" BHR	Circular Pipe - 72.0 in	0.012	257	0.013	443	15.67	5208.9	5199.5	5205.56
	SAN PEDRO SD OUTFALL AT I-25 AND ALAMEDA PLACE							5203.5	5196.43	5202.74
PR. 54" RCP	PR. SAN PEDRO & SIGNAL STUBOUT: Q100 = 165 CFS	Circular Pipe - 54.0 in	0.026	50	0.013	165	10.37	5233.2	5225.75	5230.9
	45 DEG BEND							5231.9	5224.36	5230.25
PR. 60" RCP	45 DEG BEND	Circular Pipe - 60.0 in	0.026	50	0.013	165	8.4	5231.6	5224.36	5229.89
	PR. 45 DEGREE BEND IN SAN PEDRO & SIGNAL							5230.42	5222.97	5229.67
EX. 54" RCP	SAN PEDRO & ALAMEDA BLVD. STUBOUT: Q100 = 252 CFS	Circular Pipe - 54.0 in	0.034	50	0.013	252	15.84	5232.3	5223.36	5230.29
	45 DEG BEND							5230.1	5221.58	5229.47
PR. 60" RCP	45 DEG BEND	Circular Pipe - 60.0 in	0.034	50	0.013	252	12.83	5230.1	5221.58	5228.6
	PR. 45 DEGREE WYE IN SAN PEDRO & ALAMEDA BLVD							5229.65	5219.8	5228.13
PR. 36" RCP	PR. SAN PEDRO & OAKLAND STUBOUT. Q100 = 45 CFS	Circular Pipe - 36.0 in	0.026	50	0.013	45	6.37	5230.6	5220.05	5224.6
	45 DEG BEND							5229.3	5218.67	5224.37
PR. 36" RCP	45 DEG BEND	Circular Pipe - 36.0 in	0.026	50	0.013	45	6.37	5229.3	5218.67	5224.15
	PR. 45 DEGREE WYE IN SAN PEDRO & OAKLAND							5228	5217.29	5223.93
PR. 72" RCP	PROPOSED J-BOX AT SAN PEDRO AND EAGLE ROCK	Circular Pipe - 72.0 in	0.02	5	0.013	325	(N/A)	5224.03	5210.5	(N/A)
	PR. MH							5224	5210.4	(N/A)
PR. 66" RCP	PR. MH	Circular Pipe - 66.0 in	0.019	334	0.013	325	20.9	5224	5210.4	5215.31
	CONNECTION TO EXISTING SD IN EAGLE ROCK							5212.65	5204.2	5207.75
PR. 78" RCP	PR. MH AT SAN PEDRO AND ALAMEDA PL.	Circular Pipe - 78.0 in	0.017	30	0.013	443	13.35	5221.4	5205	5211.75
	PR. 45 DEGREE BEND							5220	5204.5	5211.54
PR. 78" RCP	PR. 45 DEGREE BEND	Circular Pipe - 78.0 in	0.01	496.7	0.013	443	17.77	5220	5204.5	5210.07
	PR. 45 DEGREE BEND AND 78" X 72" BHR							5208.9	5199.5	5206.85
PR. 36" RCP	PROPOSED INTERCEPTION OF Q 100 = 50 CFS AT ALAMEDA	Circular Pipe - 42.0 in	0.01	50	0.013	50	10.44	5222	5211.5	5213.71
	PR. MH AT SAN PEDRO AND ALAMEDA PL.							5221.4	5205	5212.85
PR. 54 RCP	Q 100 = 256 INTERCEPTION AT EAGLE ROCK	Circular Pipe - 54.0 in	0.02	50	0.013	256	16.1	5226	5216	5220.62
	PROPOSED J-BOX AT SAN PEDRO AND EAGLE ROCK							5224.03	5210.5	5219.77


HGL=5223
SAN PEDRO DRIVE



KEYED NOTES:

1. EXISTING DIRECT BURY TELEPHONE LINE TO BE REMOVED AND DISPOSED BY CENTURYLINK.
2. EXISTING 3-4" PVC FIBER OPTIC LINES TO BE RELOCATED BY CENTURYLINK.
3. EXISTING 2" PVC GAS LINE TO BE RELOCATED BY GAS CO. OF N.M.

POT-HOLE INFORMATION

NO.	ELEV. AT TOP OF PIPE	DESCRIPTION		
		UTILITY	MATERIAL	DIAMETER
PH-1	5230.33	FIBER OPT.	PVC	3-4"

NOTE:
HGL BASED ON DEVELOPED CONDITIONS WITH FUTURE STORM DRAIN SYSTEM CONSTRUCTED.

SCALE 1" = 40'

SCALE 1" = 5'

Thompson Engineering Consultants, Inc.

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

TITLE
ALAMEDA BLVD. WIDENING
ALAMEDA STORM DRAIN PLAN AND PROFILE STA. 7+00.00 TO STA. 19+00

Design Review Committee: APPROVED — DESIGN REVIEW COMMITTEE
City Engineer Approval: APPROVED — CITY ENGINEER
Last Design Update

City Project No. 768391 | Zone Map No. C-18/C-19 | Sequence No. 4-2 | Sheet 14-AA2 | Of 25

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE
11559	SURVEYING CONTROL, INC.	11-2010

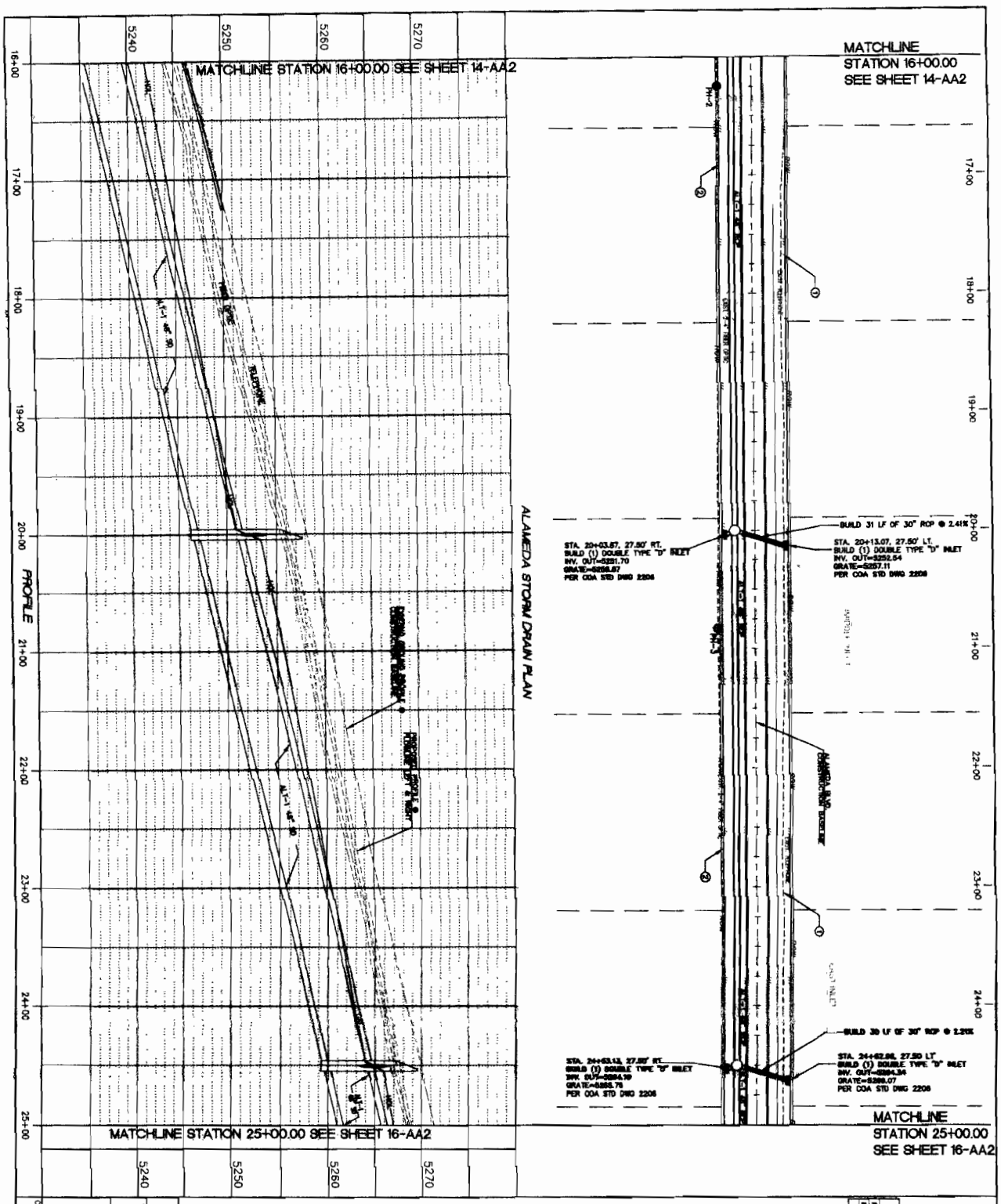
BENCH MARKS
Coordinates shown are New Mexico State Plane Coordinates - Central Zone, North American Datum of 1983 (Conus)
N.M. State Plane Coordinates - Central Zone, NAD 83 and were derived by holding State Plane grid coordinates by the project average combined factor of 0.99970588 at origin of GPS observations and NAVD 88, and are based on City of Albuquerque Control Stations 13-C18 and 13-C19.
Elevations are based on City of Albuquerque Control Stations 13-C18 and 13-C19.
The coordinates and elevations are U.S. Survey Feet.

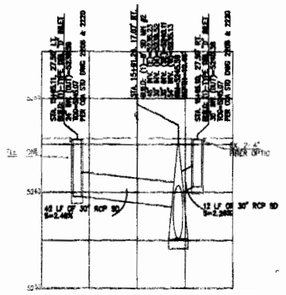
AS BUILT INFORMATION
CONTRACTOR
DATE
RECORDED BY
NO

ENGINEER'S SEAL
1-4-13

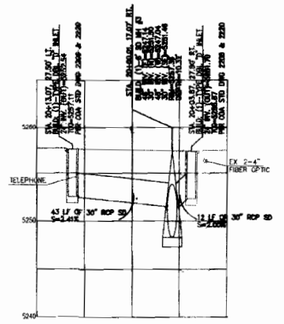
NO.	REMARKS	DATE	BY
	AS BUILTS	DATE 12-2012	
	DESIGNED BY DRT	DATE 12-2012	
	DRAWN BY DEM	DATE 12-2012	
	CHECKED BY DRT	DATE	

MICRO-FILM INFORMATION

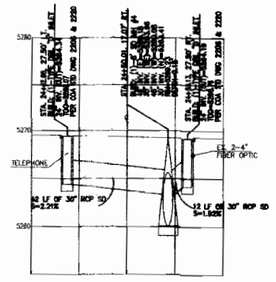

MATCHLINE STATION 16+00.00 SEE SHEET 14-AA2
MATCHLINE STATION 25+00.00 SEE SHEET 16-AA2
PROFILE
ALAMEDA STORM DRAIN PLAN
MATCHLINE
STATION 16+00.00
SEE SHEET 14-AA2
MATCHLINE
STATION 25+00.00
SEE SHEET 16-AA2
STA. 20+03.87, 27.50' RT.
BUILD (1) DOUBLE TYPE "D" INLET
INV. OUT=5231.70
GRATE=5236.87
PER COA STD DWG 2206
BUILD 31 LF OF 30" RCP @ 2.41%
STA. 20+13.07, 27.50' LT.
BUILD (1) DOUBLE TYPE "D" INLET
INV. OUT=5252.54
GRATE=5257.11
PER COA STD DWG 2206
BUILD 30 LF OF 30" RCP @ 2.21%
STA. 24+63.13, 27.50' RT.
BUILD (1) DOUBLE TYPE "D" INLET
INV. OUT=5264.19
GRATE=5268.76
PER COA STD DWG 2206
STA. 24+92.86, 27.50 LT.
BUILD (1) DOUBLE TYPE "D" INLET
INV. OUT=5264.34
GRATE=5268.07
PER COA STD DWG 2206
ALAMEDA BLVD. CONSTRUCTION BASELINE
CONSTRUCT 2'-6" TRIB DRIVE
CONSTRUCT 2'-6" TRIB DRIVE
CONSTRUCT INLET
ELEV. AT TOP OF PIPE
UTILITY MATERIAL
DESCRIPTION
DIAMETER
5265.79
FIBER OPT.
PVC
2-4"
5268.38
FIBER OPT.
PVC
2-4"
MODEL NOTES:
① EXISTING (MOST) BURY TELEPHONE LINE TO BE REMOVED AND DISPOSED BY CONTRUTOR.
② EXISTING 2-4" PVC FIBER OPTIC LINES TO BE RELOCATED BY CONTRUTOR.
POT-HOLE INFORMATION
NO
PH-1
PH-2
PH-3
APPROVED
DEVELOPMENT REVIEW COMMITTEE
Design Review Committee
APPROVED
CITY ENGINEER
City Engineer Approval
Last Design Update
CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION
TITLE
ALAMEDA STORM DRAIN PLAN AND PROFILE STA. 16+00 TO STA. 25+00
ALAMEDA BLVD. WIDENING
City Project No. 766319
Zone Map No. C-18/C-19
Sequence No. 4-3
Sheet 15-AA2 Of 25
Thompson Engineering Consultants, Inc.
SCALE 1" = 40'
SCALE: 1" = 5'
NO. DATE REMARKS BY
REVISIONS
DESIGNED BY DBT DATE 12-2012
DRAWN BY DEM DATE 12-2012
CHECKED BY DBT DATE 12-2012
ENGINEERS SEAL
DANIEL B. THOMPSON
NEW MEXICO
9677
LICENSED PROFESSIONAL ENGINEER
1-4-13
SURVEY INFORMATION
FIELD NOTES
NO. BY DATE
11599 SURVEYING CONTROL INC. 11-2010
BENCH MARKS
Coordinates shown hereon are modified (surface)
N.M. State Plane Coordinates – Central Zone
NAD 83 and were derived by scaling State
Plane grid coordinates by the project average
combined factor of CF = 1.000334861 around
an origin of O.D. Elevations are NAVD 88, and
are adjusted to the NGS Control Station "18-C18,
1985" (published elevation = 5222.090')
The coordinates and elevations are US Survey Feet.
AS BUILT INFORMATION
CONTRACTOR
WORK STARTED BY DATE
INSPECTION'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWING CORRECTED BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE
NO.



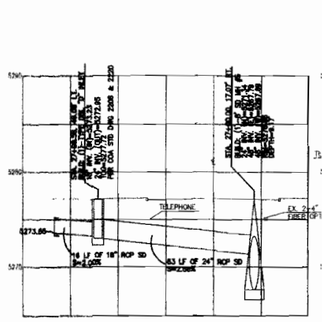
ALAMEDA STORM DRAIN LATERAL
STA. 15+91.24, 17.07' RT.



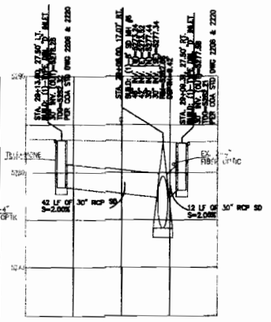
ALAMEDA STORM DRAIN LATERAL
STA. 20+00.01, 17.07' RT.



ALAMEDA STORM DRAIN LATERAL
STA. 24+50.01, 17.07' RT.



ALAMEDA STORM DRAIN LATERAL
STA. 27+00.00, 17.07' RT.



ALAMEDA STORM DRAIN LATERAL
STA. 29+08.00, 17.07' RT.

NOTE:
ALL LATERAL STORM DRAINS
ARE CLASS IV.

AS BUILT INFORMATION
CONTRACTOR DATE
Name of Company
Name of Rep.
Date Work Started
Date Work Completed

BENCH MARKS
Coordinates shown hereon are modified (Surface)
N.M. State Plane Coordinate System, Central Zone,
Nad 1983 (1992) Datum, U.S. Survey Feet
Plans and coordinates to the nearest second

SURVEY INFORMATION
FIELD NOTES BY DATE
NO. 11999 SURVEYING CONTROL NO. 11-2011

MICRO-FILM INFORMATION
Contractor shall not scale drawings. Written dimensions shall govern. All work and materials shall be in accordance with the standard specifications of the City of Albuquerque, New Mexico, 1986 Edition and Amendments thereto. Contractor shall verify all dimensions, quantities and conditions and shall be responsible for the same. Contractor shall notify the Engineer of any discrepancies before performing any work.
All angles of B.L. Directions are NEAD 83, and are adjusted to the NGS Control Station "ILICHIL"
1985 Datum elevation = 5222.09(ft)
The coordinates and elevations are in US Survey Feet

RECORDED BY
NO DATE

ENGINEERS SEAL
1-8-13

NO.	DATE	REMARKS	BY
		PREVIOUS DESIGN	
	12-2012		DBT
	12-2012		DBT
	12-2012		DBT

DESIGNED BY: DBT
DRAWN BY: RGM
CHECKED BY: DBT

SCALE: 1" = 5'
SCALE: 1" = 20'

Thompson Engineering Consultants, Inc.

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

TITLE
ALAMEDA BLVD. WIDENING
LATERALS

Design Review Committee: APPROVED JAN 1 '13 DESIGN REVIEW COMMITTEE
City Engineer, Approved: APPROVED JAN 11 2013 CITY ENGINEER
Last Design Date

City Project No. 766391
Zone Map No. C-18/C-19
Sequence No. 4-5
Sheet 17-AA2 of 25

APPENDIX B

SITE HYDROLOGY

Weighted E Method

EAGLE CREST

Existing Developed Basins

	Basin	Area (sf)	Area (acres)	Treatment A %	(acres)	Treatment B %	(acres)	Treatment C %	(acres)	Treatment D %	(acres)	100-Year, 6-hr Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	10-day Volume (ac-ft)	provided	total	
drains to oakland div	B1	61044	1.401	0%	0	10.0%	0.140	22.0%	0.3083	68%	0.953	1.981	0.231	6.21	0.358	0.000	15609.968	0.0%
	B2	4230	0.097	0%	0	10.0%	0.010	40.0%	0.03884	50%	0.049	1.788	0.014	0.40	0.021	0.000	912.27	0.0%
	B3	13645	0.313	0%	0	20.0%	0.063	24.0%	0.07518	56%	0.175	1.815	0.047	1.30	0.071	1565.000	3082.8603	50.8%
drains to oakland	G1	38271	0.879	0%	0	10.0%	0.088	22.0%	0.19329	68%	0.597	1.981	0.145	3.89	0.225	302.000	9786.5326	3.1%
	G2	3581	0.082	0%	0	30.0%	0.025	24.0%	0.01973	46%	0.038	1.671	0.011	0.32	0.016	252.000	718.3486	35.1%
	G3	3122	0.072	0%	0	40.0%	0.029	25.0%	0.01792	34%	0.024	1.493	0.009	0.26	0.012	530.000	529.93348	100.0%
	G4	5992	0.138	0%	0	15.0%	0.021	36.0%	0.04952	49%	0.067	1.759	0.020	0.56	0.029	0.000	1269.7048	0.0%
	G4A	3244	0.074	0%	0	25.0%	0.019	28.0%	0.02085	36%	0.027	1.441	0.009	0.25	0.013	252.000	545.20827	46.2%
	G5	2258	0.052	0%	0	48.0%	0.025	30.0%	0.01555	22%	0.011	1.348	0.006	0.18	0.007	537.000	319.8457	167.9%
	G6	18458	0.424	0%	0	26.0%	0.110	26.0%	0.11017	48%	0.203	1.707	0.060	1.69	0.087	2098.000	3807.5778	55.1%
	G7	8236	0.189	0%	0	10.0%	0.019	21.0%	0.03971	69%	0.130	1.991	0.031	0.84	0.049	0.000	2124.4076	0.0%
	G8	14425	0.331	0%	0	21.0%	0.070	25.0%	0.08279	54%	0.179	1.790	0.049	1.36	0.073	678.000	3190.4494	21.3%
	G8E	26480	0.608	0%	0	21.0%	0.128	25.0%	0.15197	54%	0.328	1.790	0.091	2.50	0.134	221.000	5856.714	3.8%
	O1W	5843	0.134	0%	0	18.0%	0.024	44.0%	0.05902	38%	0.051	1.630	0.018	0.52	0.025	100.000	1089.7195	9.2%
	O1E	9652	0.222	0%	0	14.0%	0.031	32.0%	0.07091	54%	0.120	1.816	0.034	0.93	0.049	100.000	2155.6133	4.6%
drains to alameda	R1	5710	0.131	0%	0	23.0%	0.030	24.0%	0.03146	53%	0.069	1.772	0.019	0.54	0.029	459.000	1246.6833	36.8%
	R2	12780	0.293	0%	0	23.0%	0.067	26.0%	0.07628	51%	0.150	1.751	0.043	1.19	0.063	641.000	2733.429	23.5%
	R3	4983	0.114	0%	0	10.0%	0.011	16.0%	0.0183	74%	0.085	2.045	0.019	0.52	0.031	0.000	1340.7592	0.0%
	R4	6059	0.139	0%	0	30.0%	0.042	22.0%	0.0306	48%	0.067	1.693	0.020	0.55	0.029	1250.000	1242.398	100.6%
	M1	767	0.018	0%	0	60.0%	0.011	40.0%	0.00704	0%	0.000	1.068	0.002	0.05	0.002	196.000	68.263	287.1%
	M2	1503	0.035	0%	0	40.0%	0.014	40.0%	0.0138	20%	0.007	1.356	0.004	0.12	0.005	210.000	209.919	100.0%
	M3E	58541	1.344	0%	0	13.0%	0.175	23.0%	0.3091	64%	0.860	1.927	0.216	5.84	0.330	543.000	14394.744	3.8%
	M3W	116701	2.679	0%	0	19.0%	0.509	16.0%	0.42865	65%	1.741	1.915	0.428	11.54	0.660	2501.000	28739.566	8.7%
	M4	5047	0.116	0%	0	58.0%	0.067	30.0%	0.03476	28%	0.032	1.581	0.015	0.46	0.020	1635.000	853.53182	191.6%
	M5	30725	0.705	0%	0	20.0%	0.141	24.0%	0.16928	56%	0.395	1.815	0.107	2.93	0.159	1492.000	6941.8017	21.5%
	DRAIN TO OAKLAND DIV	78919	1.812	0%	0	11.7%	0.2124977	23.3%	0.42233	65%	1.1769082	1.942	0.293	7.92	0.450	1565	19605.099	8.0%
	DRAIN TO OAKLAND	139562	3.204	0%	0	18.3%	0.5867674	26.0%	0.83142	55%	1.7768021	1.812	0.484	13.31	0.721	5070	31394.055	16.1%
	DRAIN TO ALAMEDA	242816	5.574	0%	0	19.1%	1.067169	20.1%	1.11929	61%	3.4063703	1.877	0.872	23.74	1.326	8927	57771.095	15.5%
	FLOW IN DEDICATED ALAMEDA	39422	0.905	0%	0	10.0%	0.091	20.0%	0.181	70%	0.634	2.002	0.151	4.04	0.235	0.000	0	0.0%
	FLOW IN DEDICATED OAKLAND	39422	0.905	0%	0	10.0%	0.091	20.0%	0.181	70%	0.634	2.002	0.151	4.04	0.235	0.000	0	
	TOTAL FLOW	540141	12.400		0	16.5%	2.047	22.1%	2.735	62%	7.627	1.888	1.951	53.05				
	ALLOWED PER NAADMP	540141	12.400		0	34.0%	4.2159766	16.0%	1.98399	50%	6.1999656	1.699	1.756	48.93				

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted D * Total Area

Flow = Qa * Aa + Qb * Ab + Qc * Ac + Qd * Ad

Where for 100-year, 6-hour storm (zone 3)

Ea= 0.66 Qa= 1.87
Eb= 0.92 Qb= 2.6
Ec= 1.29 Qc= 3.45
Ed= 2.36 Qd= 5.02

PONDING PROVIDED	15562.000	11.87
FIRST FLUSH REQUIREMENT	9413.34285	CF
FLOW RATE EXCEEDANCE	4.12	CFS
REDUCTION FOR ROUTING AND PONDS	6.52	CFS

BASINS THAT RETAIN ALL FLOWS

G3	0.26 CFS
G5	0.18 CFS
R4	0.55 CFS
M1	0.05 CFS
M2	0.12
M4	0.46 CFS
TOTAL	1.62 CFS

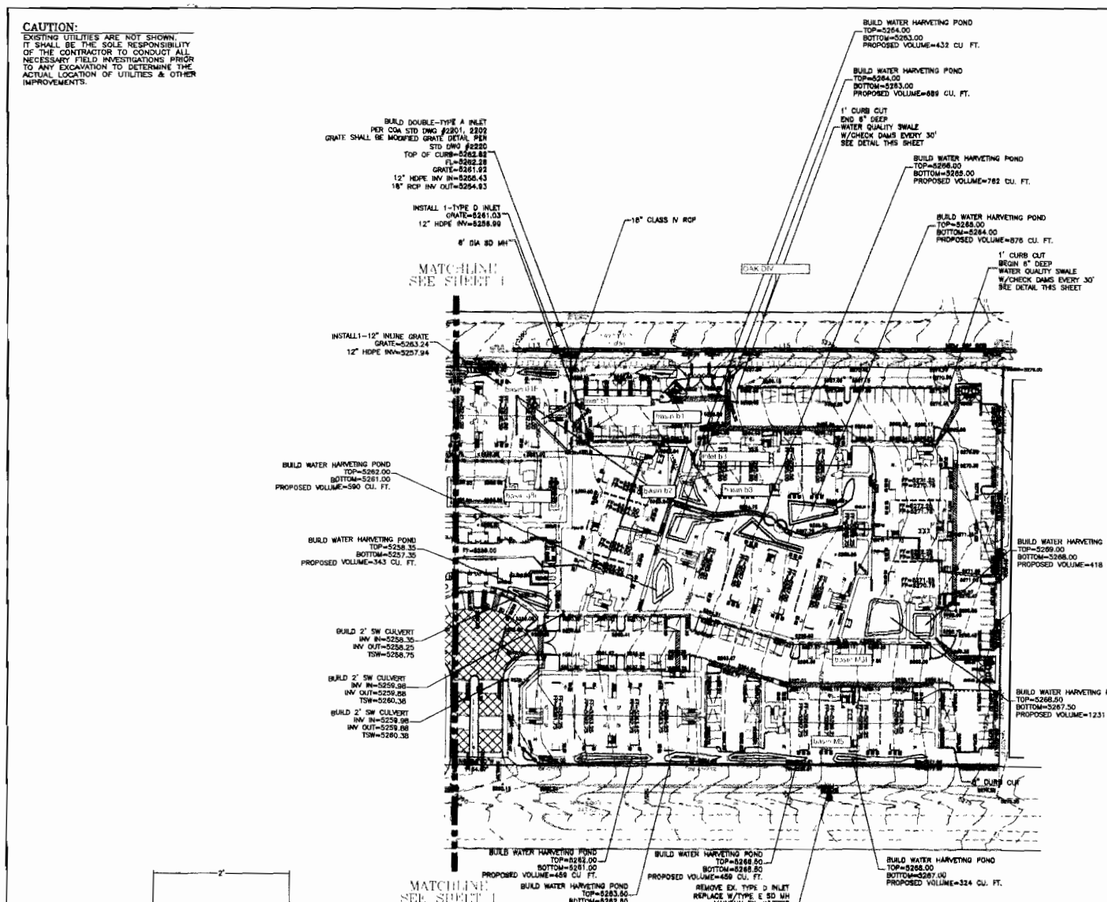
FLOW SUMMARY	PROPOSED FROM SITE	FROM ROADWAY	TOTAL	ALLOWED PER NAADMP
FLOW TO OAKLAND DIRVERSION	7.81	2.02	9.83	12.23
FLOW TO OAKLAND	11.42	2.02	13.44	12.23
FLOW TO ALAMEDA	19.23	4.04	23.27	24.46

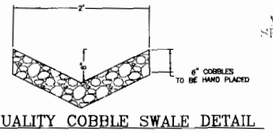
ROAD FLOWS AT INLET

EAST ALAMEDA*	3.40 CFS
MIDDLE ALAMEDA	3.4 CFS
WEST ALAMEDA	3.4 CFS
EAST OAKLAND	2.02 CFS
WEST OAKLAND	2.02 CFS

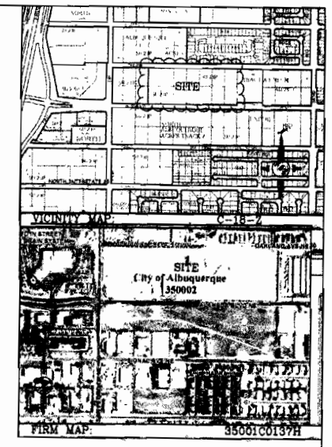
* STREET FLOWS IN ALAMEDA ARE BASED UPON FLOWS GENERATED BY OUR 10' LANE AND ASPHALT MULTIPLIED BY 2.5 TO ACCOUNT FOR 20' OF EX ASPHALT

CAUTION:
EXISTING UTILITIES ARE NOT SHOWN. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO ANY EXCAVATION TO DETERMINE THE ACTUAL LOCATION OF UTILITIES & OTHER IMPROVEMENTS.





WATER QUALITY COBBLE SWALE DETAIL
NTS



LEGAL DESCRIPTION:

NOTES:
1. ALL SPOT ELEVATIONS REPRESENT FLOWLINE ELEVATION UNLESS OTHERWISE NOTED.
2. FENCING BY OTHERS.

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 ACCEPTANCE OF ANY PROJECT.

LEGEND

5xx	EXISTING CONTOUR
5xx	EXISTING INDEX CONTOUR
5xx	PROPOSED CONTOUR
5xx	PROPOSED INDEX CONTOUR
	SLOPE TIE
X 4048.88	EXISTING SPOT ELEVATION
	PROPOSED SPOT ELEVATION
	BOUNDARY
	CENTERLINE
	RIGHT-OF-WAY
	PROPOSED CURB AND GUTTER
	EXISTING CURB AND GUTTER
	PROPOSED SIDEWALK
	PROPOSED SETBACK
	PROPOSED LOT LINE
	PROPOSED SCREEN WALL
	PROPOSED RETAINING WALL
	DESIGN BY OTHERS

N

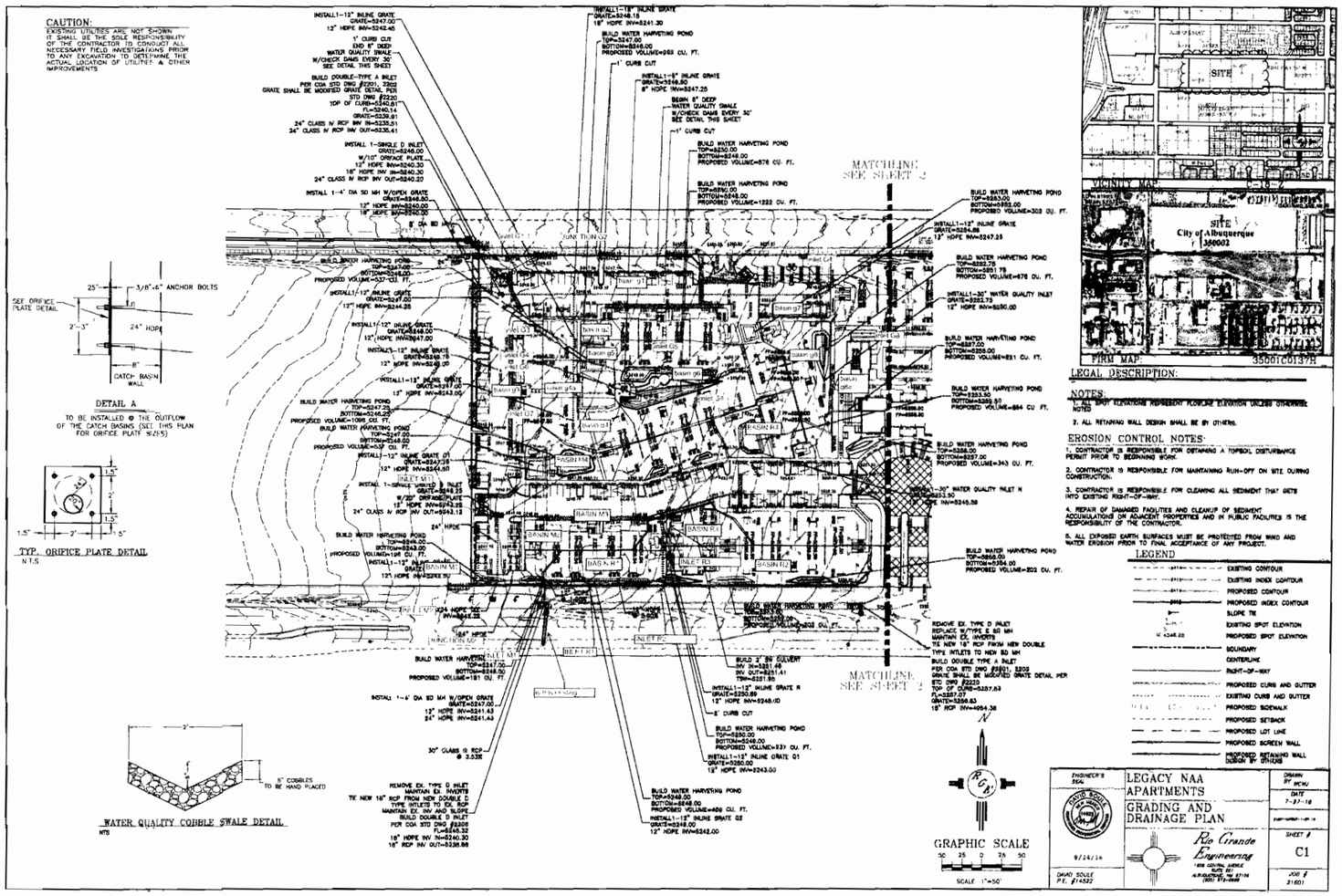
GRAPHIC SCALE
50 25 0 25 50
SCALE: 1"=50'

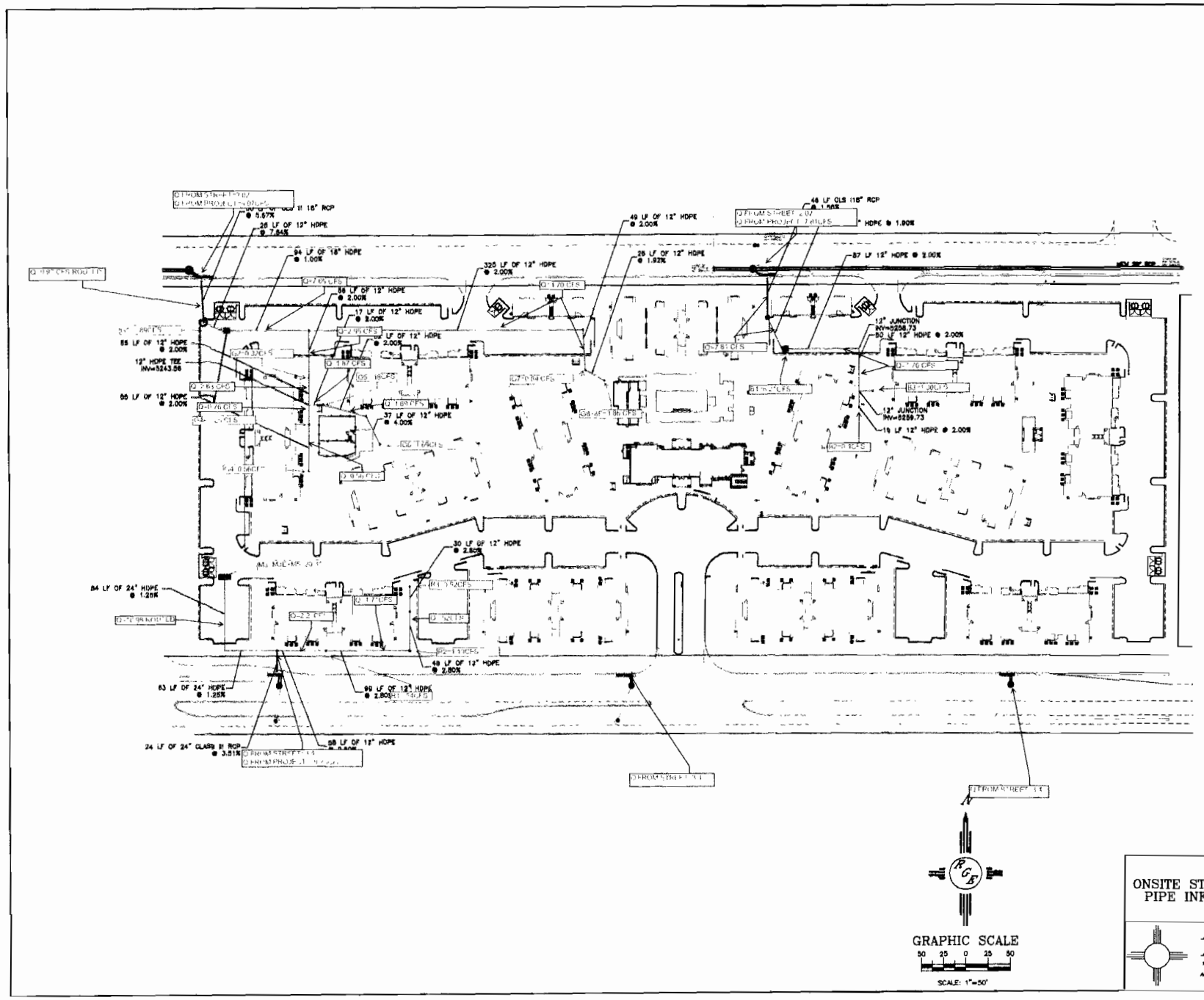
ENGINEER'S SEAL
DAVID SOULE
NEW MEXICO
9/24/16
DAVID SOULE P.E. #14522

LEGACY NAA APARTMENTS
GRADING AND DRAINAGE PLAN

Rio Grande Engineering
1606 CENTRAL AVENUE SUITE NW ALBUQUERQUE, NM 87106 (505) 975-7668

DRAWN BY: WCHU
DATE: 7-27-16
SHEET #: C2
JOB #: 21601


CAUTION:
EXISTING UTILITIES ARE NOT SHOWN. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO ANY EXCAVATION TO DETERMINE THE ACTUAL LOCATION OF UTILITIES & OTHER IMPROVEMENTS
MATCHLINE SEE SHEET 2
MATCHLINE SEE SHEET 2
DETAIL A
TO BE INSTALLED @ THE OUTFLOW OF THE CATCH BASINS (SEE THIS PLAN FOR ORIFICE PLATE SIZES)
3/8"-6" ANCHOR BOLTS
SEE ORIFICE PLATE DETAIL
24" HDPE
CATCH BASIN WALL
TYP. ORIFICE PLATE DETAIL
N.T.S
WATER QUALITY COBBLE SWALE DETAIL
N.T.S
8" COBBLES TO BE HAND PLACED
GRAPHIC SCALE
SCALE 1"=50'
VICINITY MAP
SITE
City of Albuquerque
350002
FIRM MAP: 35001C0137H
LEGAL DESCRIPTION:
NOTES:
1. ALL SPOT ELEVATIONS REPRESENT FLOWLINE ELEVATION UNLESS OTHERWISE NOTED
2. ALL RETAINING WALL DESIGN SHALL BE BY OTHERS.
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 ACCEPTANCE OF ANY PROJECT.
LEGEND
EXISTING CONTOUR
EXISTING INDEX CONTOUR
PROPOSED CONTOUR
PROPOSED INDEX CONTOUR
SLOPE TIE
EXISTING SPOT ELEVATION
PROPOSED SPOT ELEVATION
BOUNDARY
CENTERLINE
RIGHT-OF-WAY
PROPOSED CURB AND GUTTER
EXISTING CURB AND GUTTER
PROPOSED SIDEWALK
PROPOSED SETBACK
PROPOSED LOT LINE
PROPOSED SCREEN WALL
PROPOSED RETAINING WALL DESIGN BY OTHERS
ENGINEER'S SEAL
DAVID SOULE
NEW MEXICO
9/26/14
DAVID SOULE P.E. #14327
LEGACY NAA APARTMENTS
GRADING AND DRAINAGE PLAN
Rio Grande Engineering
1606 CENTRAL AVENUE SUITE 201 ALBUQUERQUE, NM 87104 (505) 573-0666
DRAWN BY MCHU
DATE 7-27-16
SHEET # C1
JOB # 2160.1



ONSITE STORM DRAIN PIPE INFORMATON

Rio Grande Engineering

DRAWN BY: MONJ
DATE: 8-30-16
SHEET #: CIVIL000C3
JOB #: 21601

ENGINEER'S SEAL

DAVID SQUAT P.E. #14332

LEGACY NAA APARTMENTS
SAN PEDRO 2 MD ALAMEDA
Albuquerque, New Mexico

LLC Office of Rich Barber Architecture ORB

WorldNG@rbbArch.com

Contractor must verify all dimensions at project before proceeding with this work.

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NO.	DATE	REMARKS
1	08/31/16	REVIEW COMMENTS
2	09/21/16	CITY REVIEW
3		
4		
5		
6		

2ND. SUBMITTAL

DATE: AUGUST 31, 2016 ORB #: 15-010

APPENDIX C

HYDRAULIC CALCULATIONS

DROP INLET CALCULATIONS

INLET	TYPE OF INLET	AREA (SF)	Q (CFS)	H (FT)	H ALLOW (FT)
north	SINGLE	3.84	7.78	0.1771	1.75
south	DOUBLE	7.68	40.62	1.2066	1.75
east	SINGLE	3.84	12.42	0.4512	0.67

ORIFICE EQUATION

Q = CA sqrt(2gH)

C = 0.6

g = 32.2

FLOW RATES ARE DOUBLED

Pipe Capacity

for all onsite pipes

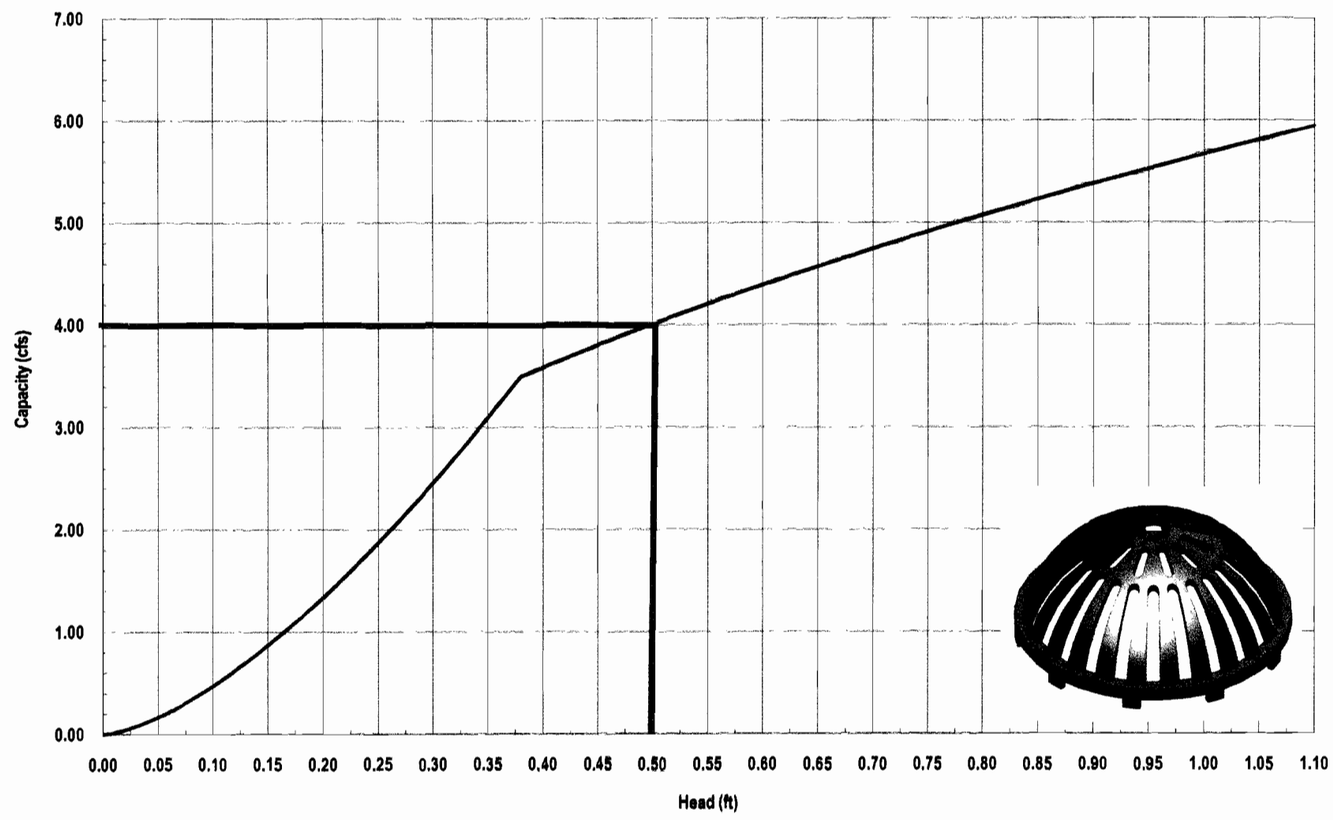
D (in)	Slope (%)	Area (ft^2)	R	Q Provided (cfs)	Q Required (cfs)	Velocity (ft/s)
18	5.57	1.77	0.375	24.86	9.97	5.64
12	7.66	0.79	0.25	9.89	9.97	12.69
18	1	1.77	0.375	10.53	7.65	4.33
12	2	0.79	0.25	5.05	4.70	5.98
24	1.25	3.14	0.5	25.36	16.98	5.40
12	2.8	0.79	0.25	5.98	0.54	0.69
18	1.56	1.77	0.375	13.16	7.81	4.42
30	1	4.91	0.625	41.13	19.23	3.92

Manning's Equation:

$Q = 1.49/n * A * R^{(2/3)} * S^{(1/2)}$

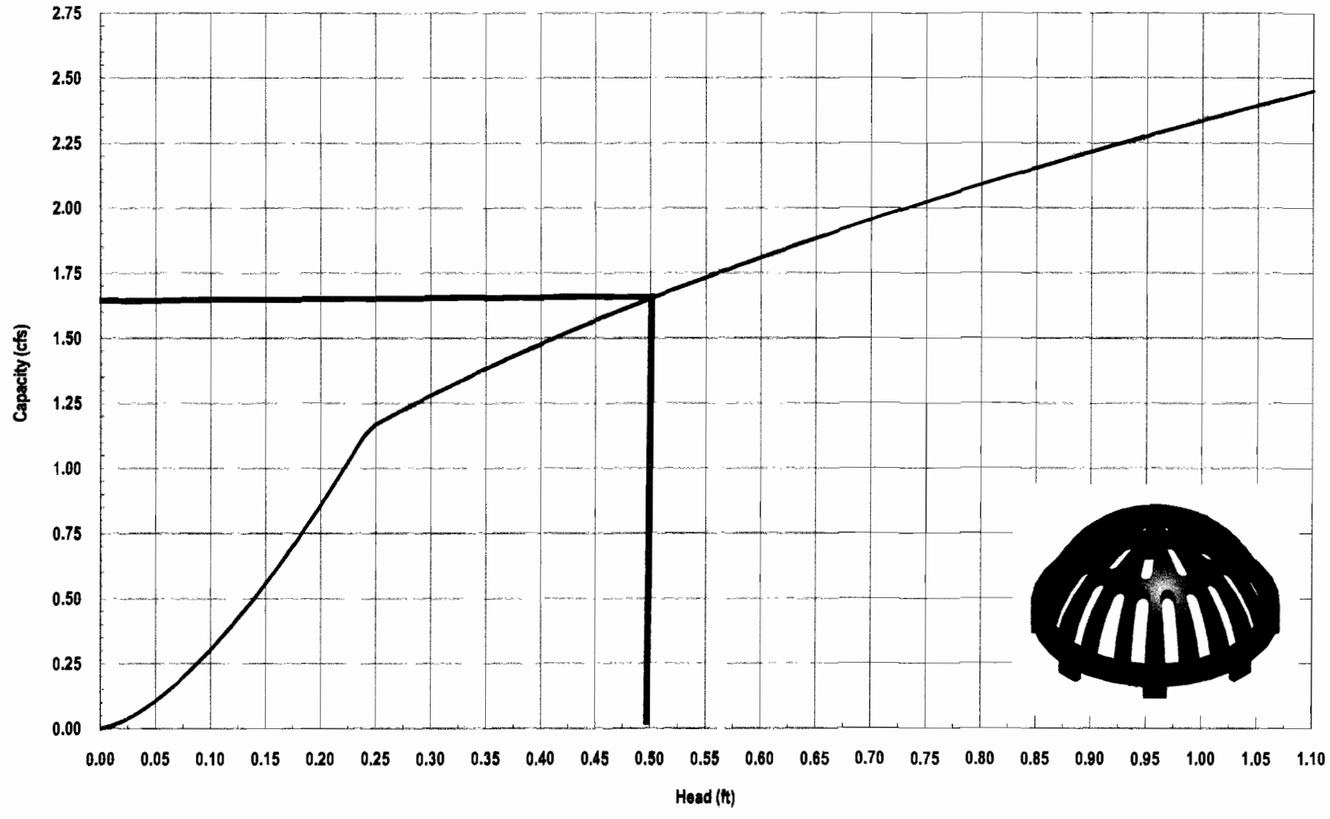
A = Area
R = D/4
S = Slope
n = 0.013

Nyloplast 18" Dome Grate Inlet Capacity Chart



Nyloplast®
3130 Verona Avenue • Buford, GA 30518
(866) 888-8479 / (770) 932-2443 • Fax: (770) 932-2490

Nyloplast 12" Dome Grate Inlet Capacity Chart



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APPENDIX D

HYDRAULIC MODEL

```
*S      AHYMO - NORTH INLET
*S              POND ROUTING

START                 TIME=0.0   PUNCH CODE=0


RAINFALL              TYPE=2
                      QUARTER=0.0     ONE= 2.14 IN
                      SIX= 2.60 IN    DAY= 3.10 IN    DT = 0.05 HR



COMPUTE NM HYD        ID=1  HYD NO=101  DA= .004297 SQ MI
                      PER A=0  PER B=17.50  PER C=24.5  PER D=58

                      TP=-.145  MASSRAIN=-1


PRINT HYD             ID=1  CODE=3


* ROUTE THE TOTAL FLOW THROUGH THE PROPOSED RESERVOIR.
ROUTE RESERVOIR       ID=2   HYD NO=102   INFLOW=1   CODE=3
                      OUTFLOW(CFS)     STORAGE(AC-FT)     ELEV(FT)
                         5.24              0.000          42.00
                         7.63              0.001          44.00
                         8.83              0.001          45.00

                         9.88              0.016          46.00
                        10.83              0.072          47.00
```

```
FINISH
```

```
       AHYMO PROGRAM (AHYMO-S4)                    - Version: S4.01a - Rel: 01a
            RUN DATE (MON/DAY/YR) = 09/11/2016
            START TIME (HR:MIN:SEC) = 19:45:15     USER NO.=
RioGrandeSingleA41963517
            INPUT FILE = \Owner\Desktop\2015 JOBS\15120-alameda
appartments\DRAINAGE\Npondrout0909 16.txt


    *S     AHYMO - NORTH INLET
    *S             POND ROUTING

    START              TIME=0.0  PUNCH CODE=0


    RAINFALL           TYPE=2
                       QUARTER=0.0    ONE= 2.14 IN
                       SIX= 2.60 IN   DAY= 3.10 IN   DT = 0.05 HR



                  24-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE
AREAS (NM & AZ) - D1
                  DT =   0.050000 HOURS       END TIME =    24.000002 HOURS
                    0.0000  0.0031  0.0062  0.0096  0.0133  0.0171  0.0214
                    0.0274  0.0368  0.0470  0.0575  0.0690  0.0807  0.0927
                    0.1052  0.1178  0.1320  0.1467  0.1627  0.1887  0.2196
                    0.2611  0.3081  0.3661  0.4435  0.5307  0.6811  0.9149
                    1.3155  1.5971  1.8192  1.9308  2.0287  2.0989  2.1549
                    2.2036  2.2393  2.2720  2.2991  2.3181  2.3331  2.3464
                    2.3590  2.3700  2.3804  2.3905  2.4002  2.4083  2.4129
                    2.4175  2.4219  2.4261  2.4303  2.4343  2.4383  2.4422
                    2.4459  2.4495  2.4531  2.4566  2.4601  2.4634  2.4667
                    2.4699  2.4731  2.4762  2.4792  2.4822  2.4851  2.4880
                    2.4909  2.4937  2.4965  2.4992  2.5019  2.5046  2.5072
                    2.5098  2.5124  2.5149  2.5175  2.5200  2.5224  2.5249
                    2.5273  2.5296  2.5320  2.5343  2.5366  2.5389  2.5412
                    2.5434  2.5456  2.5478  2.5500  2.5521  2.5542  2.5564
                    2.5584  2.5605  2.5626  2.5646  2.5666  2.5686  2.5706
                    2.5725  2.5745  2.5764  2.5783  2.5802  2.5821  2.5839
                    2.5858  2.5876  2.5894  2.5912  2.5930  2.5948  2.5965
                    2.5983  2.6000  2.6017  2.6035  2.6052  2.6069  2.6086
                    2.6104  2.6121  2.6138  2.6155  2.6172  2.6190  2.6207
                    2.6224  2.6241  2.6258  2.6275  2.6292  2.6309  2.6326
                    2.6343  2.6360  2.6377  2.6394  2.6411  2.6428  2.6445
                    2.6461  2.6478  2.6495  2.6512  2.6529  2.6545  2.6562
                    2.6579  2.6595  2.6612  2.6629  2.6645  2.6662  2.6679
                    2.6695  2.6712  2.6728  2.6745  2.6761  2.6778  2.6794
                    2.6811  2.6827  2.6844  2.6860  2.6876  2.6893  2.6909
                    2.6925  2.6942  2.6958  2.6974  2.6990  2.7007  2.7023
                    2.7039  2.7055  2.7071  2.7087  2.7104  2.7120  2.7136
                    2.7152  2.7168  2.7184  2.7200  2.7216  2.7232  2.7248
                    2.7264  2.7279  2.7295  2.7311  2.7327  2.7343  2.7359
                    2.7374  2.7390  2.7406  2.7422  2.7437  2.7453  2.7469
                    2.7484  2.7500  2.7516  2.7531  2.7547  2.7562  2.7578
                    2.7593  2.7609  2.7624  2.7640  2.7655  2.7671  2.7686
                    2.7701  2.7717  2.7732  2.7747  2.7763  2.7778  2.7793
                    2.7808  2.7824  2.7839  2.7854  2.7869  2.7884  2.7899
                    2.7915  2.7930  2.7945  2.7960  2.7975  2.7990  2.8005
                    2.8020  2.8035  2.8050  2.8065  2.8079  2.8094  2.8109
                    2.8124  2.8139  2.8154  2.8168  2.8183  2.8198  2.8213
```

2.8227	2.8242	2.8257	2.8271	2.8286	2.8301	2.8315
2.8330	2.8344	2.8359	2.8373	2.8388	2.8402	2.8417
2.8431	2.8446	2.8460	2.8474	2.8489	2.8503	2.8517
2.8532	2.8546	2.8560	2.8574	2.8589	2.8603	2.8617
2.8631	2.8645	2.8659	2.8674	2.8688	2.8702	2.8716
2.8730	2.8744	2.8758	2.8772	2.8786	2.8800	2.8813
2.8827	2.8841	2.8855	2.8869	2.8883	2.8897	2.8910
2.8924	2.8938	2.8952	2.8965	2.8979	2.8993	2.9006
2.9020	2.9033	2.9047	2.9061	2.9074	2.9088	2.9101
2.9115	2.9128	2.9141	2.9155	2.9168	2.9182	2.9195
2.9208	2.9222	2.9235	2.9248	2.9262	2.9275	2.9288
2.9301	2.9314	2.9328	2.9341	2.9354	2.9367	2.9380
2.9393	2.9406	2.9419	2.9432	2.9445	2.9458	2.9471
2.9484	2.9497	2.9510	2.9523	2.9536	2.9549	2.9561
2.9574	2.9587	2.9600	2.9612	2.9625	2.9638	2.9651
2.9663	2.9676	2.9689	2.9701	2.9714	2.9726	2.9739
2.9751	2.9764	2.9776	2.9789	2.9801	2.9814	2.9826
2.9839	2.9851	2.9863	2.9876	2.9888	2.9900	2.9912
2.9925	2.9937	2.9949	2.9961	2.9974	2.9986	2.9998
3.0010	3.0022	3.0034	3.0046	3.0058	3.0070	3.0082
3.0094	3.0106	3.0118	3.0130	3.0142	3.0154	3.0166
3.0178	3.0189	3.0201	3.0213	3.0225	3.0237	3.0248
3.0260	3.0272	3.0283	3.0295	3.0307	3.0318	3.0330
3.0341	3.0353	3.0364	3.0376	3.0387	3.0399	3.0410
3.0422	3.0433	3.0445	3.0456	3.0467	3.0479	3.0490
3.0501	3.0513	3.0524	3.0535	3.0546	3.0558	3.0569
3.0580	3.0591	3.0602	3.0613	3.0624	3.0635	3.0646
3.0658	3.0669	3.0680	3.0690	3.0701	3.0712	3.0723
3.0734	3.0745	3.0756	3.0767	3.0777	3.0788	3.0799
3.0810	3.0821	3.0831	3.0842	3.0853	3.0863	3.0874
3.0885	3.0895	3.0906	3.0916	3.0927	3.0937	3.0948
3.0958	3.0969	3.0979	3.0990	3.1000		

COMPUTE NM HYD ID=1 HYD NO=101 DA= .004297 SQ MI
PER A=0 PER B=17.50 PER C=24.5 PER D=58
TP=-.145 MASSRAIN=-1

K = 0.079025HR TP = 0.145000HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 9.0456 CFS UNIT VOLUME = 0.9989 B = 526.28
P60 = 2.1400
AREA = 0.002492 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

K = 0.129687HR TP = 0.145000HR K/TP RATIO = 0.894390 SHAPE CONSTANT, N = 3.964006
UNIT PEAK = 4.3907 CFS UNIT VOLUME = 0.9979 B = 352.77
P60 = 2.1400
AREA = 0.001805 SQ MI IA = 0.41250 INCHES INF = 1.00500 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=1 CODE=3

PARTIAL HYDROGRAPH 101.00

TIME	FLOW	TIME	FLOW	TIME	FLOW

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	4.950	0.0	9.900	0.1
14.850	0.0	19.800	0.0		
0.150	0.0	5.100	0.0	10.050	0.1
15.000	0.0	19.950	0.0		
0.300	0.0	5.250	0.0	10.200	0.1
15.150	0.0	20.100	0.0		
0.450	0.0	5.400	0.0	10.350	0.1
15.300	0.0	20.250	0.0		
0.600	0.0	5.550	0.0	10.500	0.1
15.450	0.0	20.400	0.0		
0.750	0.0	5.700	0.1	10.650	0.1
15.600	0.0	20.550	0.0		
0.900	0.3	5.850	0.1	10.800	0.1
15.750	0.0	20.700	0.0		
1.050	0.6	6.000	0.1	10.950	0.0
15.900	0.0	20.850	0.0		
1.200	1.3	6.150	0.1	11.100	0.0
16.050	0.0	21.000	0.0		
1.350	3.5	6.300	0.1	11.250	0.0
16.200	0.0	21.150	0.0		
1.500	11.4	6.450	0.1	11.400	0.0
16.350	0.0	21.300	0.0		
1.650	7.8	6.600	0.1	11.550	0.0
16.500	0.0	21.450	0.0		
1.800	3.7	6.750	0.1	11.700	0.0
16.650	0.0	21.600	0.0		
1.950	2.0	6.900	0.1	11.850	0.0
16.800	0.0	21.750	0.0		
2.100	1.2	7.050	0.1	12.000	0.0
16.950	0.0	21.900	0.0		
2.250	0.7	7.200	0.1	12.150	0.0
17.100	0.0	22.050	0.0		
2.400	0.5	7.350	0.1	12.300	0.0
17.250	0.0	22.200	0.0		
2.550	0.3	7.500	0.1	12.450	0.0
17.400	0.0	22.350	0.0		
2.700	0.2	7.650	0.1	12.600	0.0
17.550	0.0	22.500	0.0		
2.850	0.1	7.800	0.1	12.750	0.0
17.700	0.0	22.650	0.0		
3.000	0.1	7.950	0.1	12.900	0.0
17.850	0.0	22.800	0.0		
3.150	0.1	8.100	0.1	13.050	0.0
18.000	0.0	22.950	0.0		
3.300	0.1	8.250	0.1	13.200	0.0
18.150	0.0	23.100	0.0		
3.450	0.0	8.400	0.1	13.350	0.0
18.300	0.0	23.250	0.0		
3.600	0.0	8.550	0.1	13.500	0.0
18.450	0.0	23.400	0.0		
3.750	0.0	8.700	0.1	13.650	0.0
18.600	0.0	23.550	0.0		
3.900	0.0	8.850	0.1	13.800	0.0
18.750	0.0	23.700	0.0		
4.050	0.0	9.000	0.1	13.950	0.0
18.900	0.0	23.850	0.0		
4.200	0.0	9.150	0.1	14.100	0.0
19.050	0.0	24.000	0.0		
4.350	0.0	9.300	0.1	14.250	0.0
19.200	0.0	24.150	0.0		

```
        4.500       0.0          9.450       0.1         14.400       0.0
19.350       0.0         24.300       0.0
        4.650       0.0          9.600       0.1         14.550       0.0
19.500       0.0         24.450       0.0
        4.800       0.0          9.750       0.1         14.700       0.0
19.650       0.0         24.600       0.0

       RUNOFF VOLUME =     2.16519 INCHES     =       0.4962 ACRE-FEET
       PEAK DISCHARGE RATE =      11.53 CFS  AT   1.550 HOURS   BASIN AREA =
0.0043 SQ. MI.
```

```
* ROUTE THE TOTAL FLOW THROUGH THE PROPOSED RESERVOIR
ROUTE RESERVOIR     ID=2   HYD NO=102   INFLOW=1   CODE=3
                    OUTFLOW(CFS)    STORAGE(AC-FT)    ELEV(FT)
                       5.24             0.000         42.00
                       7.63             0.001         44.00
                       8.83             0.001         45.00
                       9.88             0.016         46.00
                       10.83            0.072         47.00
```

```
* * * * * * * * * * * * * * * * * * * *
```

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	37.62	-0.002	0.00
0.15	0.00	42.00	0.000	5.24
0.30	0.00	42.00	0.000	5.24
0.45	0.00	42.00	0.000	5.24
0.60	0.00	42.00	0.000	5.24
0.75	0.04	42.00	0.000	5.24
0.90	0.28	42.00	0.000	5.24
1.05	0.59	42.00	0.000	5.24
1.20	1.25	42.00	0.000	5.24
1.35	3.52	42.00	0.000	5.24
1.50	11.45	45.64	0.011	9.51
1.65	7.83	46.01	0.017	9.89
1.80	3.68	42.00	0.000	5.24
1.95	2.01	42.00	0.000	5.24
2.10	1.16	42.00	0.000	5.24
2.25	0.74	42.00	0.000	5.24
2.40	0.51	42.00	0.000	5.24
2.55	0.29	42.00	0.000	5.24
2.70	0.19	42.00	0.000	5.24
2.85	0.13	42.00	0.000	5.24
3.00	0.09	42.00	0.000	5.24
3.15	0.07	42.00	0.000	5.24
3.30	0.06	42.00	0.000	5.24
3.45	0.04	42.00	0.000	5.24
3.60	0.04	42.00	0.000	5.24
3.75	0.04	42.00	0.000	5.24

		NORTH POND OUTLET		AHYMO.OUT
3.90	0.04	42.00	0.000	5.24
4.05	0.04	42.00	0.000	5.24
4.20	0.04	42.00	0.000	5.24
4.35	0.04	42.00	0.000	5.24
4.50	0.04	42.00	0.000	5.24
4.65	0.04	42.00	0.000	5.24
4.80	0.04	42.00	0.000	5.24
4.95	0.04	42.00	0.000	5.24
5.10	0.05	42.00	0.000	5.24
5.25	0.05	42.00	0.000	5.24
5.40	0.05	42.00	0.000	5.24
5.55	0.05	42.00	0.000	5.24
5.70	0.05	42.00	0.000	5.24
5.85	0.05	42.00	0.000	5.24
6.00	0.05	42.00	0.000	5.24
6.15	0.06	42.00	0.000	5.24
6.30	0.05	42.00	0.000	5.24
6.45	0.06	42.00	0.000	5.24
6.60	0.06	42.00	0.000	5.24
6.75	0.06	42.00	0.000	5.24
6.90	0.05	42.00	0.000	5.24
7.05	0.05	42.00	0.000	5.24
7.20	0.05	42.00	0.000	5.24
7.35	0.05	42.00	0.000	5.24
7.50	0.05	42.00	0.000	5.24
7.65	0.05	42.00	0.000	5.24
7.80	0.05	42.00	0.000	5.24
7.95	0.05	42.00	0.000	5.24
8.10	0.05	42.00	0.000	5.24
8.25	0.05	42.00	0.000	5.24

PEAK DISCHARGE = 9.968 CFS - PEAK OCCURS AT HOUR 1.60
MAXIMUM WATER SURFACE ELEVATION = 46.093
MAXIMUM STORAGE = 0.0212 AC-FT INCREMENTAL TIME= 0.050000HRS

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 19:45:15

```
*S      AHYMO - SOUTH INLET
*S              POND ROUTING

START                 TIME=0.0  PUNCH CODE=0


RAINFALL              TYPE=2
                      QUARTER=0.0     ONE= 2.14 IN
                      SIX= 2.60 IN    DAY= 3.10 IN    DT = 0.05 HR



COMPUTE NM HYD        ID=1  HYD NO=101  DA= .0073875 SQ MI
                      PER A=0  PER B=17.4 PER C=19.2  PER D=63.4

                      TP=-.142  MASSRAIN=-1


PRINT HYD             ID=1  CODE=3


* ROUTE THE TOTAL FLOW THROUGH THE PROPOSED RESERVOIR
ROUTE RESERVOIR       ID=2   HYD NO=102   INFLOW=1   CODE=3
                      OUTFLOW(CFS)     STORAGE(AC-FT)     ELEV(FT)
                          7.37              0.000          44.00
                         11.26              0.001          45.00
                         14.11              0.001          46.25

                         16.48              0.014          46.50
                         17.54              0.062          47.00
```

```
FINISH
```

```
      AHYMO PROGRAM (AHYMO-S4)                        - Version: S4.01a - Rel: 01a
           RUN DATE (MON/DAY/YR) = 09/11/2016
           START TIME (HR:MIN:SEC) = 20:09:09      USER NO.=
RioGrandeSingleA41963517
           INPUT FILE = \Owner\Desktop\2015 JOBS\15120-alameda
appartments\DRAINAGE\Spondrout0909 16.txt

    *S     AHYMO - SOUTH INLET
    *S             POND ROUTING

    START              TIME=0.0   PUNCH CODE=0


    RAINFALL           TYPE=2
                       QUARTER=0.0    ONE= 2.14 IN
                       SIX= 2.60 IN   DAY= 3.10 IN    DT = 0.05 HR



                  24-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE
AREAS (NM & AZ) - D1
                  DT =   0.050000 HOURS        END TIME =    24.000002 HOURS
                    0.0000  0.0031  0.0062  0.0096  0.0133  0.0171  0.0214
                    0.0274  0.0368  0.0470  0.0575  0.0690  0.0807  0.0927
                    0.1052  0.1178  0.1320  0.1467  0.1627  0.1887  0.2196
                    0.2611  0.3081  0.3661  0.4435  0.5307  0.6811  0.9149
                    1.3155  1.5971  1.8192  1.9308  2.0287  2.0989  2.1549
                    2.2036  2.2393  2.2720  2.2991  2.3181  2.3331  2.3464
                    2.3590  2.3700  2.3804  2.3905  2.4002  2.4083  2.4129
                    2.4175  2.4219  2.4261  2.4303  2.4343  2.4383  2.4422
                    2.4459  2.4495  2.4531  2.4566  2.4601  2.4634  2.4667
                    2.4699  2.4731  2.4762  2.4792  2.4822  2.4851  2.4880
                    2.4909  2.4937  2.4965  2.4992  2.5019  2.5046  2.5072
                    2.5098  2.5124  2.5149  2.5175  2.5200  2.5224  2.5249
                    2.5273  2.5296  2.5320  2.5343  2.5366  2.5389  2.5412
                    2.5434  2.5456  2.5478  2.5500  2.5521  2.5542  2.5564
                    2.5584  2.5605  2.5626  2.5646  2.5666  2.5686  2.5706
                    2.5725  2.5745  2.5764  2.5783  2.5802  2.5821  2.5839
                    2.5858  2.5876  2.5894  2.5912  2.5930  2.5948  2.5965
                    2.5983  2.6000  2.6017  2.6035  2.6052  2.6069  2.6086
                    2.6104  2.6121  2.6138  2.6155  2.6172  2.6190  2.6207
                    2.6224  2.6241  2.6258  2.6275  2.6292  2.6309  2.6326
                    2.6343  2.6360  2.6377  2.6394  2.6411  2.6428  2.6445
                    2.6461  2.6478  2.6495  2.6512  2.6529  2.6545  2.6562
                    2.6579  2.6595  2.6612  2.6629  2.6645  2.6662  2.6679
                    2.6695  2.6712  2.6728  2.6745  2.6761  2.6778  2.6794
                    2.6811  2.6827  2.6844  2.6860  2.6876  2.6893  2.6909
                    2.6925  2.6942  2.6958  2.6974  2.6990  2.7007  2.7023
                    2.7039  2.7055  2.7071  2.7087  2.7104  2.7120  2.7136
                    2.7152  2.7168  2.7184  2.7200  2.7216  2.7232  2.7248
                    2.7264  2.7279  2.7295  2.7311  2.7327  2.7343  2.7359
                    2.7374  2.7390  2.7406  2.7422  2.7437  2.7453  2.7469
                    2.7484  2.7500  2.7516  2.7531  2.7547  2.7562  2.7578
                    2.7593  2.7609  2.7624  2.7640  2.7655  2.7671  2.7686
                    2.7701  2.7717  2.7732  2.7747  2.7763  2.7778  2.7793
                    2.7808  2.7824  2.7839  2.7854  2.7869  2.7884  2.7899
                    2.7915  2.7930  2.7945  2.7960  2.7975  2.7990  2.8005
                    2.8020  2.8035  2.8050  2.8065  2.8079  2.8094  2.8109
                    2.8124  2.8139  2.8154  2.8168  2.8183  2.8198  2.8213
```

2.8227	2.8242	2.8257	2.8271	2.8286	2.8301	2.8315
2.8330	2.8344	2.8359	2.8373	2.8388	2.8402	2.8417
2.8431	2.8446	2.8460	2.8474	2.8489	2.8503	2.8517
2.8532	2.8546	2.8560	2.8574	2.8589	2.8603	2.8617
2.8631	2.8645	2.8659	2.8674	2.8688	2.8702	2.8716
2.8730	2.8744	2.8758	2.8772	2.8786	2.8800	2.8813
2.8827	2.8841	2.8855	2.8869	2.8883	2.8897	2.8910
2.8924	2.8938	2.8952	2.8965	2.8979	2.8993	2.9006
2.9020	2.9033	2.9047	2.9061	2.9074	2.9088	2.9101
2.9115	2.9128	2.9141	2.9155	2.9168	2.9182	2.9195
2.9208	2.9222	2.9235	2.9248	2.9262	2.9275	2.9288
2.9301	2.9314	2.9328	2.9341	2.9354	2.9367	2.9380
2.9393	2.9406	2.9419	2.9432	2.9445	2.9458	2.9471
2.9484	2.9497	2.9510	2.9523	2.9536	2.9549	2.9561
2.9574	2.9587	2.9600	2.9612	2.9625	2.9638	2.9651
2.9663	2.9676	2.9689	2.9701	2.9714	2.9726	2.9739
2.9751	2.9764	2.9776	2.9789	2.9801	2.9814	2.9826
2.9839	2.9851	2.9863	2.9876	2.9888	2.9900	2.9912
2.9925	2.9937	2.9949	2.9961	2.9974	2.9986	2.9998
3.0010	3.0022	3.0034	3.0046	3.0058	3.0070	3.0082
3.0094	3.0106	3.0118	3.0130	3.0142	3.0154	3.0166
3.0178	3.0189	3.0201	3.0213	3.0225	3.0237	3.0248
3.0260	3.0272	3.0283	3.0295	3.0307	3.0318	3.0330
3.0341	3.0353	3.0364	3.0376	3.0387	3.0399	3.0410
3.0422	3.0433	3.0445	3.0456	3.0467	3.0479	3.0490
3.0501	3.0513	3.0524	3.0535	3.0546	3.0558	3.0569
3.0580	3.0591	3.0602	3.0613	3.0624	3.0635	3.0646
3.0658	3.0669	3.0680	3.0690	3.0701	3.0712	3.0723
3.0734	3.0745	3.0756	3.0767	3.0777	3.0788	3.0799
3.0810	3.0821	3.0831	3.0842	3.0853	3.0863	3.0874
3.0885	3.0895	3.0906	3.0916	3.0927	3.0937	3.0948
3.0958	3.0969	3.0979	3.0990	3.1000		

COMPUTE NM HYD ID=1 HYD NO=101 DA= .0073875 SQ MI
PER A=0 PER B=17.4 PER C=19.2 PER D=63.4
TP=-.142 MASSRAIN=-1

K = 0.077390HR TP = 0.142000HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 17.358 CFS UNIT VOLUME = 0.9985 B = 526.28
P60 = 2.1400
AREA = 0.004684 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

K = 0.128552HR TP = 0.142000HR K/TP RATIO = 0.905294 SHAPE CONSTANT, N = 3.913266
UNIT PEAK = 6.6520 CFS UNIT VOLUME = 0.9992 B = 349.35
P60 = 2.1400
AREA = 0.002704 SQ MI IA = 0.42131 INCHES INF = 1.02967 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=1 CODE=3

PARTIAL HYDROGRAPH 101.00

TIME	FLOW	TIME	FLOW	TIME	FLOW

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	5.100	0.1	10.200	0.1
15.300	0.1	20.400	0.1		
0.150	0.0	5.250	0.1	10.350	0.1
15.450	0.1	20.550	0.1		
0.300	0.0	5.400	0.1	10.500	0.1
15.600	0.1	20.700	0.1		
0.450	0.0	5.550	0.1	10.650	0.1
15.750	0.1	20.850	0.1		
0.600	0.0	5.700	0.1	10.800	0.1
15.900	0.1	21.000	0.1		
0.750	0.1	5.850	0.1	10.950	0.1
16.050	0.1	21.150	0.1		
0.900	0.5	6.000	0.1	11.100	0.1
16.200	0.1	21.300	0.1		
1.050	1.1	6.150	0.1	11.250	0.1
16.350	0.1	21.450	0.1		
1.200	2.4	6.300	0.1	11.400	0.1
16.500	0.1	21.600	0.1		
1.350	6.4	6.450	0.1	11.550	0.1
16.650	0.1	21.750	0.1		
1.500	20.3	6.600	0.1	11.700	0.1
16.800	0.1	21.900	0.1		
1.650	13.4	6.750	0.1	11.850	0.1
16.950	0.1	22.050	0.1		
1.800	6.4	6.900	0.1	12.000	0.1
17.100	0.1	22.200	0.1		
1.950	3.5	7.050	0.1	12.150	0.1
17.250	0.1	22.350	0.1		
2.100	2.0	7.200	0.1	12.300	0.1
17.400	0.1	22.500	0.1		
2.250	1.3	7.350	0.1	12.450	0.1
17.550	0.1	22.650	0.1		
2.400	0.9	7.500	0.1	12.600	0.1
17.700	0.1	22.800	0.1		
2.550	0.5	7.650	0.1	12.750	0.1
17.850	0.1	22.950	0.1		
2.700	0.3	7.800	0.1	12.900	0.1
18.000	0.1	23.100	0.1		
2.850	0.2	7.950	0.1	13.050	0.1
18.150	0.1	23.250	0.1		
3.000	0.2	8.100	0.1	13.200	0.1
18.300	0.1	23.400	0.1		
3.150	0.1	8.250	0.1	13.350	0.1
18.450	0.1	23.550	0.1		
3.300	0.1	8.400	0.1	13.500	0.1
18.600	0.1	23.700	0.1		
3.450	0.1	8.550	0.1	13.650	0.1
18.750	0.1	23.850	0.1		
3.600	0.1	8.700	0.1	13.800	0.1
18.900	0.1	24.000	0.1		
3.750	0.1	8.850	0.1	13.950	0.1
19.050	0.1	24.150	0.0		
3.900	0.1	9.000	0.1	14.100	0.1
19.200	0.1	24.300	0.0		
4.050	0.1	9.150	0.1	14.250	0.1
19.350	0.1	24.450	0.0		
4.200	0.1	9.300	0.1	14.400	0.1
19.500	0.1	24.600	0.0		
4.350	0.1	9.450	0.1	14.550	0.1
19.650	0.1	24.750	0.0		

4.500	0.1	9.600	0.1	14.700	0.1
19.800	0.1				
4.650	0.1	9.750	0.1	14.850	0.1
19.950	0.1				
4.800	0.1	9.900	0.1	15.000	0.1
20.100	0.1				
4.950	0.1	10.050	0.1	15.150	0.1
20.250	0.1				

RUNOFF VOLUME = 2.24744 INCHES = 0.8855 ACRE-FEET
PEAK DISCHARGE RATE = 20.34 CFS AT 1.500 HOURS BASIN AREA = 0.0074 SQ. MI.

* ROUTE THE TOTAL FLOW THROUGH THE PROPOSED RESERVOIR
ROUTE RESERVOIR ID=2 HYD NO=102 INFLOW=1 CODE=3

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)
7.37	0.000	44.00
11.26	0.001	45.00
14.11	0.001	46.25
16.48	0.014	46.50
17.54	0.062	47.00

* * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	42.11	-0.002	0.00
0.15	0.00	44.00	0.000	7.37
0.30	0.00	44.00	0.000	7.37
0.45	0.00	44.00	0.000	7.37
0.60	0.00	44.00	0.000	7.37
0.75	0.07	44.00	0.000	7.37
0.90	0.54	44.00	0.000	7.37
1.05	1.14	44.00	0.000	7.37
1.20	2.38	44.00	0.000	7.37
1.35	6.42	44.00	0.000	7.37
1.50	20.34	46.50	0.014	16.48
1.65	13.45	46.66	0.030	16.83
1.80	6.37	44.00	0.000	7.37
1.95	3.55	44.00	0.000	7.37
2.10	2.03	44.00	0.000	7.37
2.25	1.29	44.00	0.000	7.37
2.40	0.88	44.00	0.000	7.37
2.55	0.49	44.00	0.000	7.37
2.70	0.32	44.00	0.000	7.37
2.85	0.23	44.00	0.000	7.37
3.00	0.16	44.00	0.000	7.37
3.15	0.13	44.00	0.000	7.37
3.30	0.11	44.00	0.000	7.37
3.45	0.09	44.00	0.000	7.37

3.60	0.08	44.00	0.000	7.37
3.75	0.07	44.00	0.000	7.37
3.90	0.07	44.00	0.000	7.37
4.05	0.07	44.00	0.000	7.37
4.20	0.07	44.00	0.000	7.37
4.35	0.07	44.00	0.000	7.37
4.50	0.08	44.00	0.000	7.37
4.65	0.08	44.00	0.000	7.37
4.80	0.08	44.00	0.000	7.37
4.95	0.08	44.00	0.000	7.37
5.10	0.09	44.00	0.000	7.37
5.25	0.09	44.00	0.000	7.37
5.40	0.09	44.00	0.000	7.37
5.55	0.09	44.00	0.000	7.37
5.70	0.10	44.00	0.000	7.37
5.85	0.10	44.00	0.000	7.37
6.00	0.10	44.00	0.000	7.37
6.15	0.10	44.00	0.000	7.37
6.30	0.10	44.00	0.000	7.37
6.45	0.10	44.00	0.000	7.37
6.60	0.10	44.00	0.000	7.37
6.75	0.10	44.00	0.000	7.37
6.90	0.10	44.00	0.000	7.37
7.05	0.10	44.00	0.000	7.37
7.20	0.10	44.00	0.000	7.37
7.35	0.10	44.00	0.000	7.37
7.50	0.10	44.00	0.000	7.37
7.65	0.10	44.00	0.000	7.37
7.80	0.10	44.00	0.000	7.37
7.95	0.10	44.00	0.000	7.37
8.10	0.10	44.00	0.000	7.37
8.25	0.10	44.00	0.000	7.37

PEAK DISCHARGE = 16.976 CFS - PEAK OCCURS AT HOUR 1.60
MAXIMUM WATER SURFACE ELEVATION = 46.734
MAXIMUM STORAGE = 0.0364 AC-FT INCREMENTAL TIME= 0.050000HRS

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 20:09:09

VOLUME CALCULATIONS

SOUTH INLET

		ACTUAL ELEV.	DEPTH (FT)	AREA SF	VOLUME PER UNIT	VOLUME CUMULATIVI	VOLUME AC-FT	Q (CFS)
	inlet bottom	43.33	0.00	12.00	0	1	0.000	
OUTLET	POND OUTLET	43.50	0.00	12.0000	2.04	3.04	0.000	
		44.00	0.50	12.0000	6.0000	9.04	0.000	5.07
		45.00	1.50	12.0000	12.0000	21.04	0.000	7.37
		46.00	2.50	12.0000	12.0000	33.04	0.001	11.26
		46.25	3.50	12.0000	12.0000	45.04	0.001	14.11
		46.50	4.50	2275.0000	571.7500	616.79	0.014	16.48
		47.00	5.00	6054.0000	2082.2500	2699.04	0.062	17.54

Orifice Equation

Q = CA SQRT(2gH)

C =	0.6
Diameter (in)	18
Area (ft^2)=	1.767145868
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS

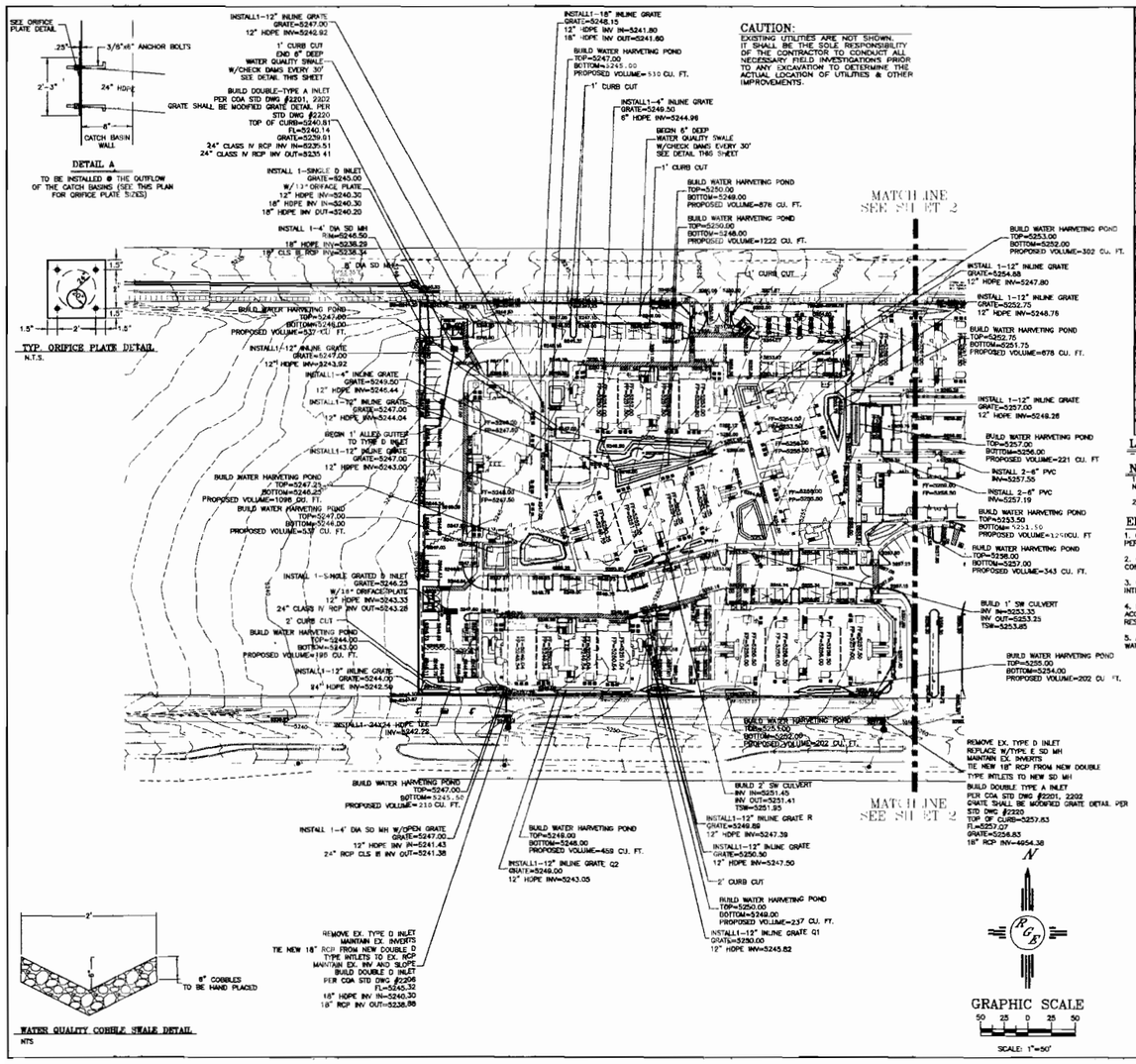
NORTH INLET

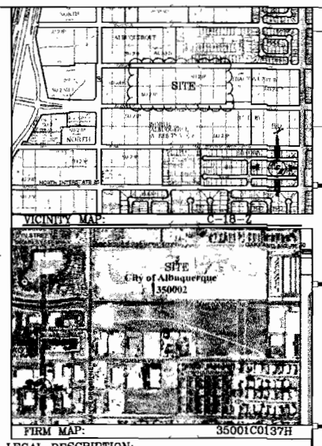
		ACTUAL ELEV.	DEPTH (FT)	AREA SF	VOLUME PER UNIT	VOLUME CUMULATIVE	VOLUME AC-FT	Q (CFS)
	inlet bottom	40.20	0.00	12.00	0	1	0.000	
OUTLET	POND OUTLET	40.50	0.00	12.0000	2.04	3.04	0.000	
		42.00	1.50	12.0000	6.0000	9.04	0.000	5.24
		43.00	2.50	12.0000	12.0000	21.04	0.000	6.21
		44.00	3.50	12.0000	12.0000	33.04	0.001	7.63
		45.00	4.50	12.0000	12.0000	45.04	0.001	8.83
		46.00	5.50	2565.0000	644.2500	689.29	0.016	9.88
		47.00	6.50	7285.0000	2462.5000	3151.79	0.072	10.83

Orifice Equation

Q = CA SQRT(2gH)

C =	0.6
Diameter (in)	13
Area (ft^2)=	0.921752011





LEGAL DESCRIPTION:

NOTES:
1. ALL SPOT ELEVATIONS REPRESENT FLOWLINE ELEVATION UNLESS OTHERWISE NOTED.
2. ALL RETAINING WALL DESIGN SHALL BE BY OTHERS.

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 ACCEPTANCE OF ANY PROJECT.

LEGEND

5410	EXISTING CONTOUR
5415	EXISTING INDEX CONTOUR
5410	PROPOSED CONTOUR
5415	PROPOSED INDEX CONTOUR
	SLOPE TIE
5248.25	EXISTING SPOT ELEVATION
X 4048.25	PROPOSED SPOT ELEVATION
	BOUNDARY
	CENTERLINE
	RIGHT-OF-WAY
	PROPOSED CURB AND GUTTER
	EXISTING CURB AND GUTTER
	PROPOSED SIDEWALK
	PROPOSED SETBACK
	PROPOSED LOT LINE
	PROPOSED SCREEN WALL
	PROPOSED RETAINING WALL DESIGN BY OTHERS

GRADING AND DRAINAGE PLAN

Rio Grande Engineering
1606 CENTRAL AVENUE SUITE 201 ALBUQUERQUE, NM 87106 (505) 379-0888

DRAWN BY MCMU
DATE 8-30-16
SHEET # CIVIL000C1
JOB # 21601

ENGINEER'S SEAL
LAND SURVEYOR
DAVID SOULE
N.M. #14827
9/25

LEGACY NAA APARTMENTS
SAN PEDRO & ALAMEDA
Albuquerque, New Mexico

Office of Rich Barber Architecture, LLC
ORB
WorldHQ@ORBArch.com

Contractor must verify all dimensions at project before proceeding with this work.

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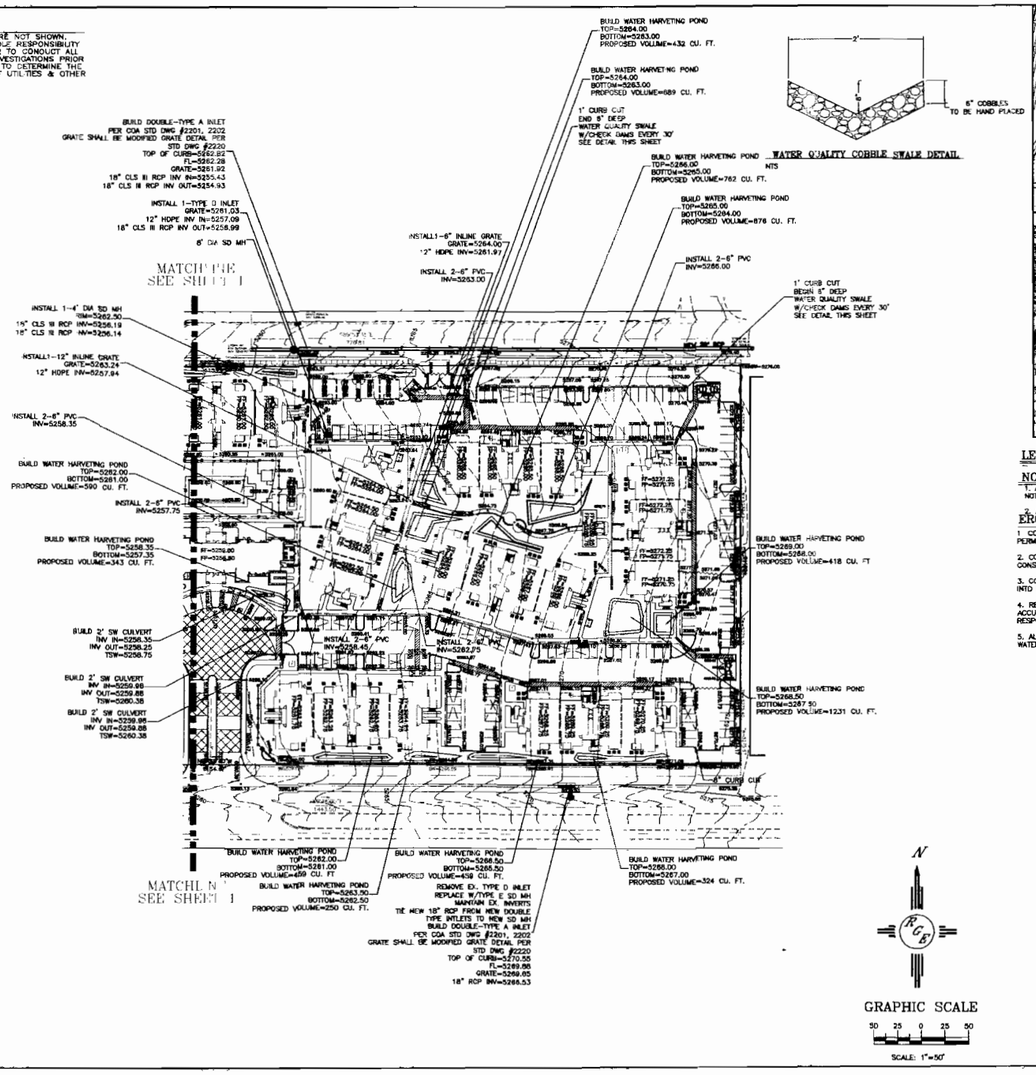
REVISIONS
08/31/16 PDRB - PLAN CORRECTIONS
09/21/16 CITY REVIEW

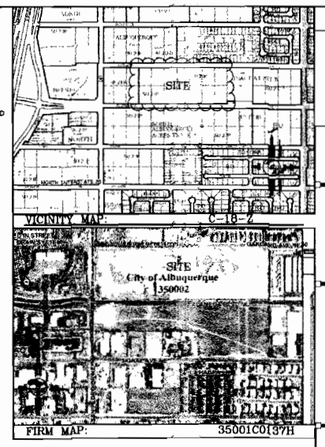
SUBMITTAL

DATE: AUGUST 31, 2016 ORB # 15 018

CAUTION:
EXISTING UTILITIES ARE NOT SHOWN. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO ANY EXCAVATION TO DETERMINE THE ACTUAL LOCATION OF UTILITIES & OTHER IMPROVEMENTS.



WATER QUALITY COBBLE SWALE DETAIL
NTS



LEGAL DESCRIPTION:

NOTES:
1. ALL SPOT ELEVATIONS REPRESENT FLOWLINE ELEVATION UNLESS OTHERWISE NOTED.
2. ALL RETAINING WALL DESIGN SHALL BE BY OTHERS.

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 ACCEPTANCE OF ANY PROJECT.

LEGEND

5416	EXISTING CONTOUR
5415	EXISTING INDEX CONTOUR
5414	PROPOSED CONTOUR
5410	PROPOSED INDEX CONTOUR
	SLOPE TIE
5045	EXISTING SPOT ELEVATION
X 5046.25	PROPOSED SPOT ELEVATION
	BOUNDARY
	CENTERLINE
	RIGHT-OF-WAY
	PROPOSED CURB AND GUTTER
	EXISTING CURB AND GUTTER
	PROPOSED SIDEWALK
	PROPOSED SETBACK
	PROPOSED LOT LINE
	PROPOSED SCREEN WALL
	PROPOSED RETAINING WAL... DESIGN BY OTHERS

GRAPHIC SCALE
50 25 0 25 50
SCALE: 1"=50'

ENGINEER'S SEAL
DAVID SOULE P.E. #14522
9/15/16

LEGACY NAA APARTMENTS
SAN PEDRO & MONTGOMERY ALBUQUERQUE, NEW MEXICO

Office of Rich Barber Architecture, LLC
ORB
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1	08/31/16 PER CITY COMMENTS
2	09/15/16 PER CITY REVIEW
3	
4	
5	
6	

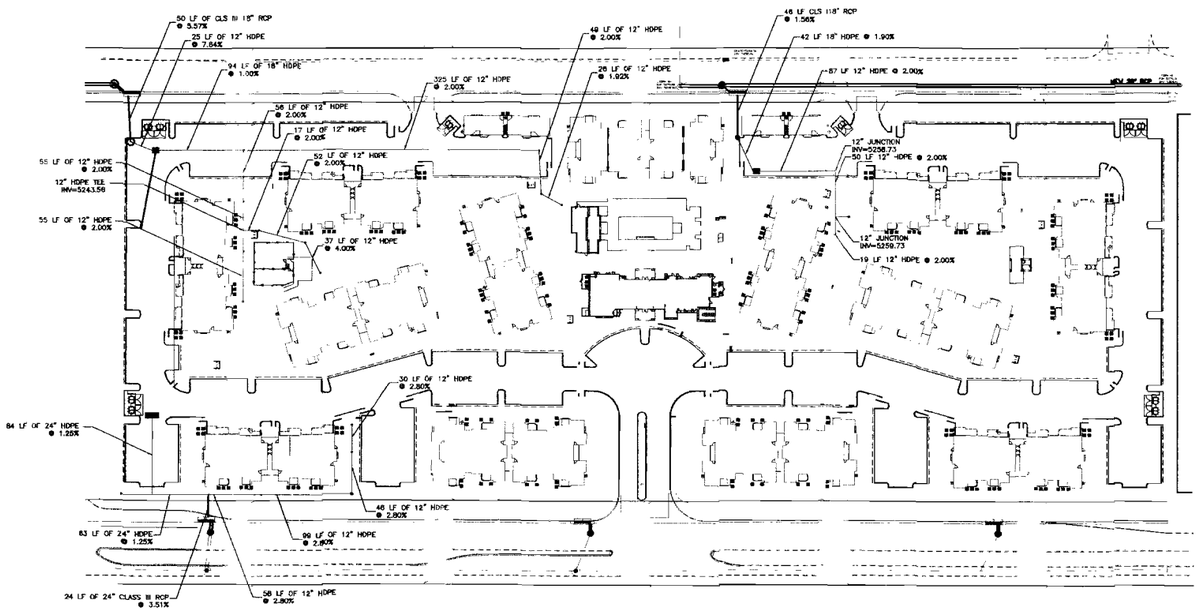
2ND SUBMITTAL

DATE: AUGUST 31, 2016 SHEET 15 OF 15

GRADING AND DRAINAGE PLAN

DRAWN BY: MCMU
DATE: 8-30-16
SHEET #: CIVIL000C2
JOB #: 21601

Rio Grande Engineering
1606 CENTRAL AVENUE SUITE 201 ALBUQUERQUE, NM 87104 (505) 979-0888



N

GRAPHIC SCALE
50 25 0 25 50
SCALE: 1"=50'

ONSITE STORM DRAIN PIPE INFORMATON

Rio Grande Engineering
1606 CENTRAL AVENUE SUITE 201
ALBUQUERQUE, NM 87106
(505) 975-0800

DRAWN BY: MDMJ
DATE: 6-30-16
SHEET #: CIVIL000C3
JOB #: 21601

ENGINEER'S SEAL

DAVID SOULE
P.E. #14522

LEGACY NAA APARTMENTS
SAN PEDRO AND ALAMEDA
Albuquerque New Mexico

LLC Office of Rich Border Architecture ORB

Working Research

Contractor must verify all dimensions of project before proceeding with this work.

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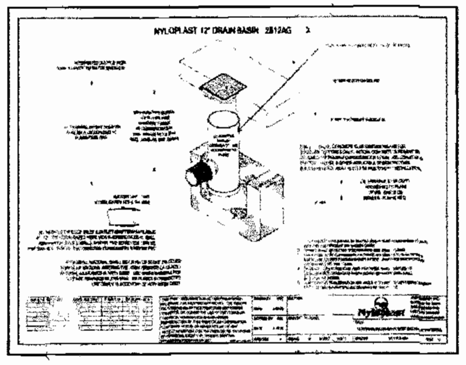
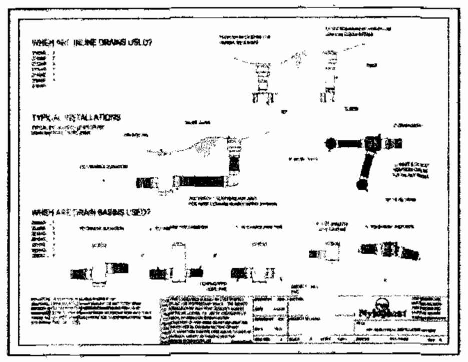
1	06/21/16 SITE PLAN COORDINATION
2	08/31/16 SITE PLAN REVIEW
3	
4	
5	
6	

2ND. SUBMITTAL

DATE: AUGUST 01, 2016 ORB #: 15-118



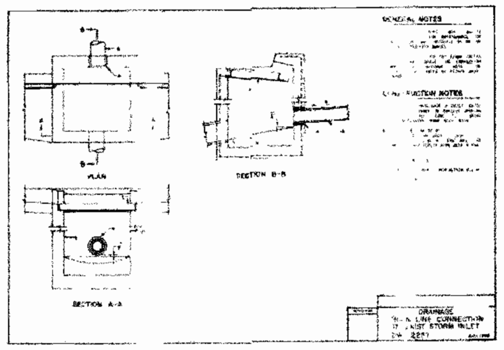
NYLOPLAST 12" DRAIN BASIN: 2812AG X



WHEN ARE INLINE DRAINS USED?

TYPICAL INSTALLATIONS

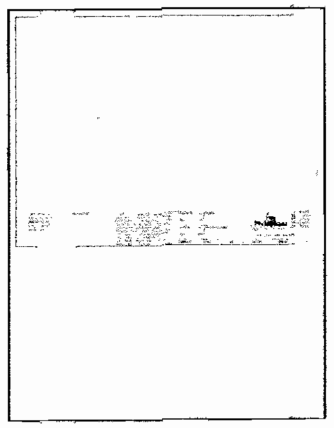
WHEN ARE DRAIN BASINS USED?

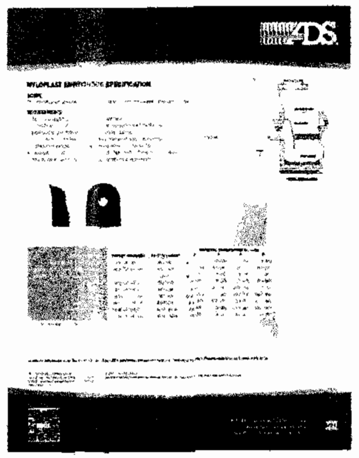


GENERAL NOTES

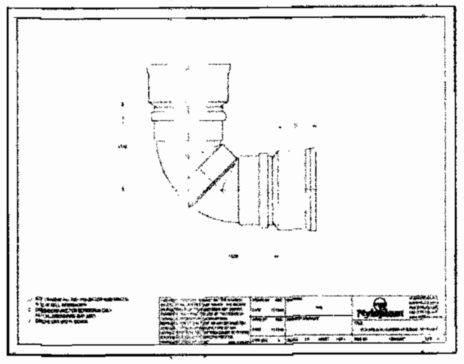
CONSTRUCTION NOTES

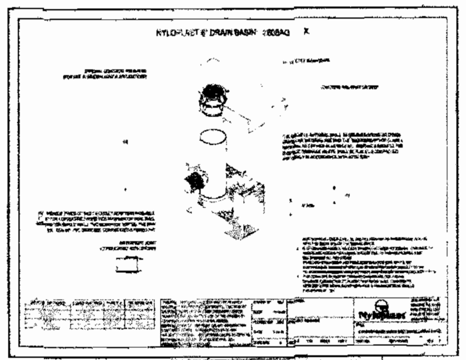
DRAINAGE
IN-LINE CONNECTION
TO JOIST STORM INLET
DWG 2237



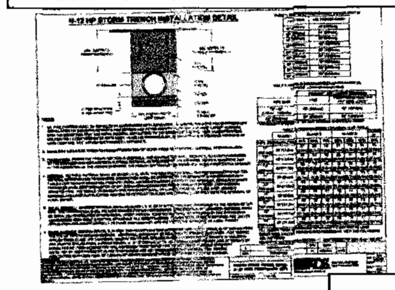


NYLOPLAST ENGINEERED SPECIFICATION





NYLOPLAST 8" DRAIN BASIN: 2808AG X

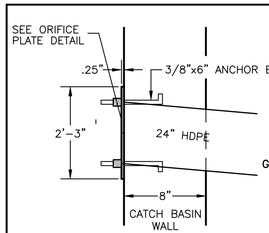


N-12 HP STORM TRENCH INSTALLATION DETAIL

7/28/16

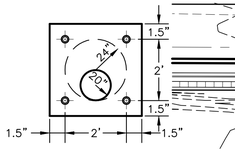
DAVID SOULE
P.E. #14522

DRAWN BY WCWJ
DATE 1-23-18
SHEET # C3
JOB # 21331



DETAIL A

TO BE INSTALLED @ THE OUTFLOW OF THE CATCH BASINS (SEE THIS PLAN FOR ORIFICE PLATE SIZES)



TYP. ORIFICE PLATE DETAIL

N.T.S.

INSTALL1-12" INLINE GRATE
GRATE=5247.00
12" HDPE INV=5242.92

1' CURB CUT
END 6" DEEP
WATER QUALITY SWALE
W/CHECK DAMS EVERY 30'
SEE DETAIL THIS SHEET

BUILD DOUBLE-TYPE A INLET
PER COA STD DWG #2201, 2202
GRATE SHALL BE MODIFIED GRATE DETAIL PER
STD DWG #2220
TOP OF CURB=5240.81
FL=5240.14
GRATE=5239.91
24" CLASS IV RCP INV IN=5235.51
24" CLASS IV RCP INV OUT=5235.41

INSTALL 1-SINGLE D INLET
GRATE=5245.00
W/ 13" ORIFACE PLATE
12" HDPE INV=5240.30
18" HDPE INV IN=5240.30
18" HDPE INV OUT=5240.20

INSTALL 1-4' DIA SD MH
RIM=5246.50
18" HDPE INV=5238.29
18" CLS III RCP INV=5238.34

8' DIA SD MH

BUILD WATER HARVETING POND
TOP=5247.00
BOTTOM=5246.00
PROPOSED VOLUME=537 CU. FT.

INSTALL1-12" INLINE GRATE
GRATE=5247.00
12" HDPE INV=5243.92

INSTALL1-4" INLINE GRATE
GRATE=5249.50
12" HDPE INV=5246.44

INSTALL1-12" INLINE GRATE
GRATE=5247.00
12" HDPE INV=5244.04

BEGIN 1' ALLEY GUTTER
TO TYPE D INLET

INSTALL1-12" INLINE GRATE
GRATE=5247.00
12" HDPE INV=5243.00

BUILD WATER HARVETING POND
TOP=5247.25
BOTTOM=5246.25
PROPOSED VOLUME=1098 CU. FT.

BUILD WATER HARVETING POND
TOP=5247.00
BOTTOM=5246.00
PROPOSED VOLUME=537 CU. FT.

INSTALL 1-SINGLE GRATED D INLET
GRATE=5246.25
W/18" ORIFACE PLATE
12" HDPE INV=5243.33
24" CLASS IV RCP INV OUT=5243.28

2' CURB CUT

BUILD WATER HARVETING POND
TOP=5244.00
BOTTOM=5243.00
PROPOSED VOLUME=196 CU. FT.

INSTALL1-12" INLINE GRATE
GRATE=5244.00
24" HDPE INV=5242.50

INSTALL1-24X24 HDPE TEE
INV=5242.22

BUILD WATER HARVETING POND
TOP=5247.00
BOTTOM=5245.50
PROPOSED VOLUME=210 CU. FT.

INSTALL 1-4' DIA SD MH W/OPEN GRATE
GRATE=5247.00
12" HDPE INV IN=5241.43
24" RCP CLS III INV OUT=5241.38

REMOVE EX. TYPE D INLET
MAINTAIN EX. INVERTS
TIE NEW 18" RCP FROM NEW DOUBLE D
TYPE INTLETS TO EX. RCP
MAINTAIN EX. INV AND SLOPE
BUILD DOUBLE D INLET
PER COA STD DWG #2206
FL=5245.32
18" HDPE INV IN=5240.30
18" RCP INV OUT=5238.88

INSTALL1-18" INLINE GRATE
GRATE=5248.15
12" HDPE INV IN=5241.80
18" HDPE INV OUT=5241.60

BUILD WATER HARVETING POND
TOP=5247.00
BOTTOM=5245.00
PROPOSED VOLUME= 530 CU. FT.

1' CURB CUT

INSTALL1-4" INLINE GRATE
GRATE=5249.50
6" HDPE INV=5244.96

BEGIN 6" DEEP
WATER QUALITY SWALE
W/CHECK DAMS EVERY 30'
SEE DETAIL THIS SHEET

1' CURB CUT

BUILD WATER HARVETING POND
TOP=5250.00
BOTTOM=5249.00
PROPOSED VOLUME=876 CU. FT.

BUILD WATER HARVETING POND
TOP=5250.00
BOTTOM=5248.00
PROPOSED VOLUME=1222 CU. FT.

1' CURB CUT

BUILD WATER HARVETING POND
TOP=5252.00
BOTTOM=5251.00
PROPOSED VOLUME=202 CU. FT.

BUILD WATER HARVETING POND
TOP=5247.00
BOTTOM=5245.50
PROPOSED VOLUME= 210 CU. FT.

BUILD WATER HARVETING POND
TOP=5249.00
BOTTOM=5248.00
PROPOSED VOLUME=459 CU. FT.

INSTALL1-12" INLINE GRATE Q2
GRATE=5249.00
12" HDPE INV=5243.05

BUILD 2' SW CULVERT
INV IN=5251.45
INV OUT=5251.41
TSW=5251.95

INSTALL1-12" INLINE GRATE R
GRATE=5249.89
12" HDPE INV=5247.39

INSTALL1-12" INLINE GRATE
GRATE=5250.50
12" HDPE INV=5247.50

2' CURB CUT

BUILD WATER HARVETING POND
TOP=5250.00
BOTTOM=5249.00
PROPOSED VOLUME=237 CU. FT.

INSTALL1-12" INLINE GRATE Q1
GRATE=5250.00
12" HDPE INV=5245.82

MATCHLINE
SEE SHEET 2

BUILD WATER HARVETING POND
TOP=5253.00
BOTTOM=5252.00
PROPOSED VOLUME=302 CU. FT.

INSTALL 1-12" INLINE GRATE
GRATE=5254.88
12" HDPE INV=5247.80

INSTALL 1-12" INLINE GRATE
GRATE=5252.75
12" HDPE INV=5248.76

BUILD WATER HARVETING POND
TOP=5252.75
BOTTOM=5251.75
PROPOSED VOLUME=678 CU. FT.

INSTALL 1-12" INLINE GRATE
GRATE=5257.00
12" HDPE INV=5249.26

BUILD WATER HARVETING POND
TOP=5257.00
BOTTOM=5256.00
PROPOSED VOLUME=221 CU. FT.

INSTALL 2-6" PVC
INV=5257.55

INSTALL 2-6" PVC
INV=5257.19

BUILD WATER HARVETING POND
TOP=5253.50
BOTTOM= 5251.50
PROPOSED VOLUME=1250CU. FT.

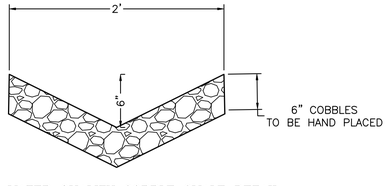
BUILD WATER HARVETING POND
TOP=5258.00
BOTTOM=5257.00
PROPOSED VOLUME=343 CU. FT.

BUILD 1' SW CULVERT
INV IN=5253.35
INV OUT=5253.25
TSW=5253.85

BUILD WATER HARVETING POND
TOP=5255.00
BOTTOM=5254.00
PROPOSED VOLUME=202 CU. FT.

REMOVE EX. TYPE D INLET
REPLACE W/TYPE E SD MH
MAINTAIN EX. INVERTS
TIE NEW 18" RCP FROM NEW DOUBLE
TYPE INTLETS TO NEW SD MH
BUILD DOUBLE TYPE A INLET
PER COA STD DWG #2201, 2202
GRATE SHALL BE MODIFIED GRATE DETAIL PER
STD DWG #2220
TOP OF CURB=5257.83
FL=5257.07
GRATE=5256.83
18" RCP INV=4954.38

MATCHLINE
SEE SHEET 2



WATER QUALITY COBBLE SWALE DETAIL

NTS

N

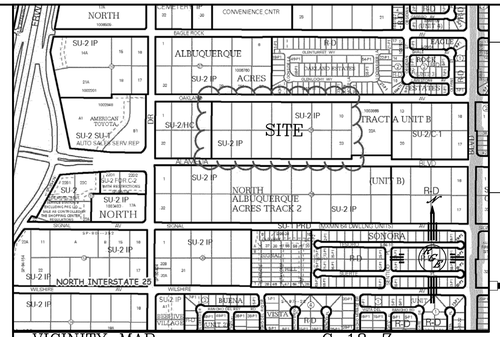
GRAPHIC SCALE

50 25 0 25 50

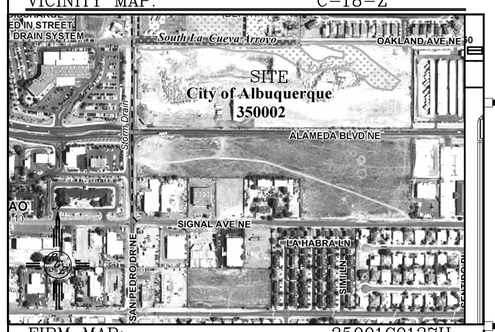
SCALE: 1"=50'

CAUTION:

EXISTING UTILITIES ARE NOT SHOWN. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO ANY EXCAVATION TO DETERMINE THE ACTUAL LOCATION OF UTILITIES & OTHER IMPROVEMENTS.



VICINITY MAP: C-18-Z



FIRM MAP: 35001C0137H

LEGAL DESCRIPTION:

-

NOTES:

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LEGEND

5414	EXISTING CONTOUR
5415	EXISTING INDEX CONTOUR
5414	PROPOSED CONTOUR
5415	PROPOSED INDEX CONTOUR
	SLOPE TIE
× 4048.25	EXISTING SPOT ELEVATION
× 4048.25	PROPOSED SPOT ELEVATION
	BOUNDARY
	CENTERLINE
	RIGHT-OF-WAY
	PROPOSED CURB AND GUTTER
	EXISTING CURB AND GUTTER
	PROPOSED SIDEWALK
	PROPOSED SETBACK
	PROPOSED LOT LINE
	PROPOSED SCREEN WALL
	PROPOSED RETAINING WALL DESIGN BY OTHERS

GRADING AND DRAINAGE PLAN

DRAWN BY WCWJ

DATE 8-30-16

21601-LAYOUT-1-07-16

SHEET # CIVIL000C1

JOB # 21601

Rio Grande Engineering
1606 CENTRAL AVENUE
SUITE 201
ALBUQUERQUE, NM 87106
(505) 872-0999

ENGINEER'S SEAL

DAVID SOULE NEW MEXICO 14522 REGISTERED PROFESSIONAL ENGINEER

9/15/16

DAVID SOULE
P.E. #14522

LEGACY NAA APARTMENTS

SAN PEDRO AND ALAMEDA
Albuquerque, New Mexico

LLC Office of Rich Barber Architecture, ORB
WorldHQ@ORBArch.com

LEGACY HOSPITALITY

REVISIONS

1 08/31/16 DESIGN TEAM COORDINATION

2 08/31/16 1ST CITY REVIEW

2ND. CITY SUBMITTAL

DATE: AUGUST 01, 2016 ORB # 15-218

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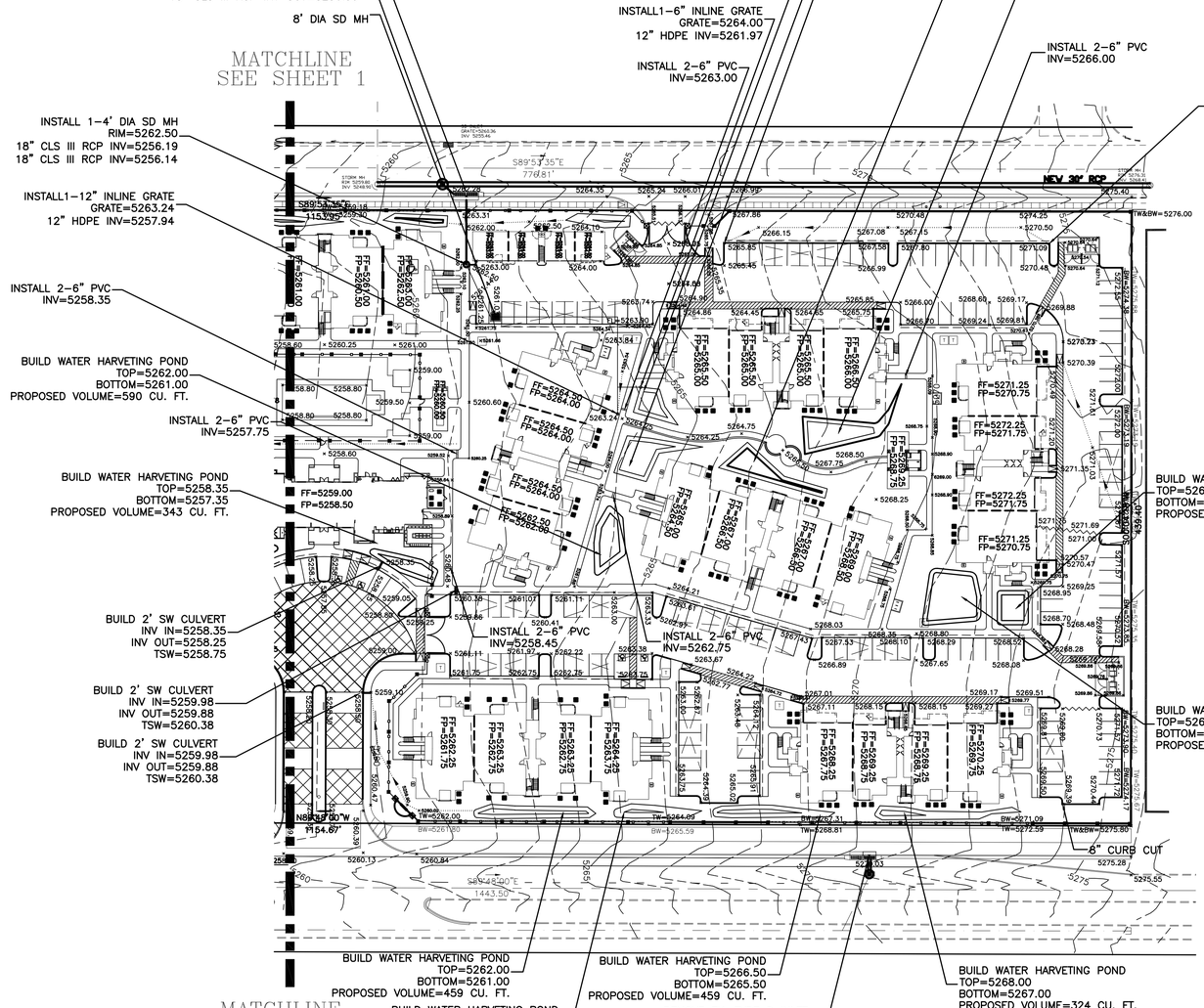
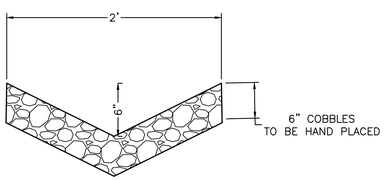
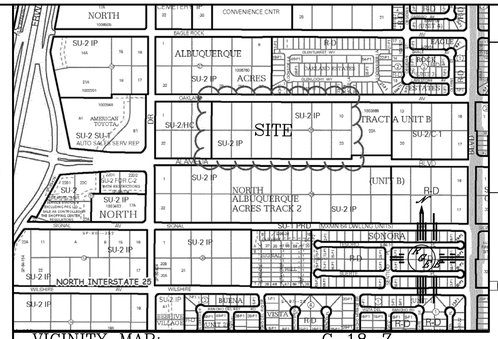




WATER QUALITY COBBLE SWALE DETAIL
NTS



VICINITY MAP: C-18-Z

FIRM MAP: 35001C0137H

LEGAL DESCRIPTION:

-

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LEGEND

5414	EXISTING CONTOUR
5415	EXISTING INDEX CONTOUR
5414	PROPOSED CONTOUR
5415	PROPOSED INDEX CONTOUR
	SLOPE TIE
× 4048.25	EXISTING SPOT ELEVATION
× 4048.25	PROPOSED SPOT ELEVATION
	BOUNDARY
	CENTERLINE
	RIGHT-OF-WAY
	PROPOSED CURB AND GUTTER
	EXISTING CURB AND GUTTER
	PROPOSED SIDEWALK
	PROPOSED SETBACK
	PROPOSED LOT LINE
	PROPOSED SCREEN WALL
	PROPOSED RETAINING WALL DESIGN BY OTHERS

N

GRAPHIC SCALE

50 25 0 25 50

SCALE: 1"=50'

GRADING AND DRAINAGE PLAN

DRAWN BY WCWJ
DATE 8-30-16
21601-LAYOUT-1-07-16
SHEET # CIVIL000C2
JOB # 21601

Rio Grande Engineering
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ENGINEER'S SEAL

DAVID SOULE NEW MEXICO 14522 REGISTERED PROFESSIONAL ENGINEER

9/15/16

DAVID SOULE
P.E. #14522

LEGACY NAA APARTMENTS

SAN PEDRO AND ALAMEDA
Albuquerque, New Mexico

LLC Office of Rich Barber Architecture, ORB
WorldHQ@ORBArch.com

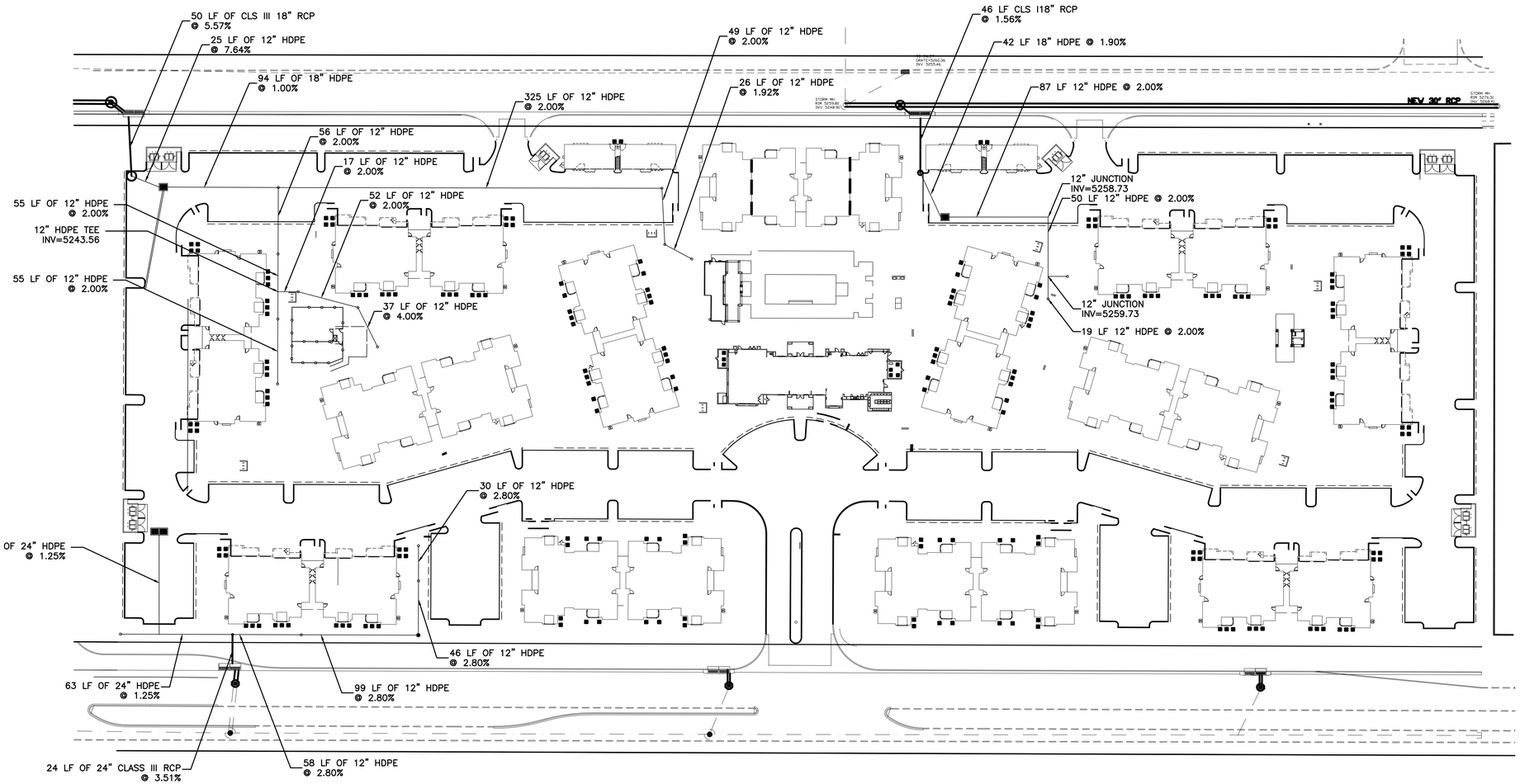
LEGACY HOSPITALITY

REVISIONS

1 08/31/16 DESIGN TEAM COORDINATION
2 08/31/16 1ST CITY REVIEW

2ND. CITY SUBMITTAL

DATE: AUGUST 01, 2016 ORB # 15-218



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GRAPHIC SCALE

50 25 0 25 50

SCALE: 1"=50'

ONSITE STORM DRAIN PIPE INFORMATON

DRAWN BY WCWJ

DATE 8-30-16

21601-LAYOUT-1-07-16

SHEET # CIVIL000C3

JOB # 21601

Rio Grande Engineering
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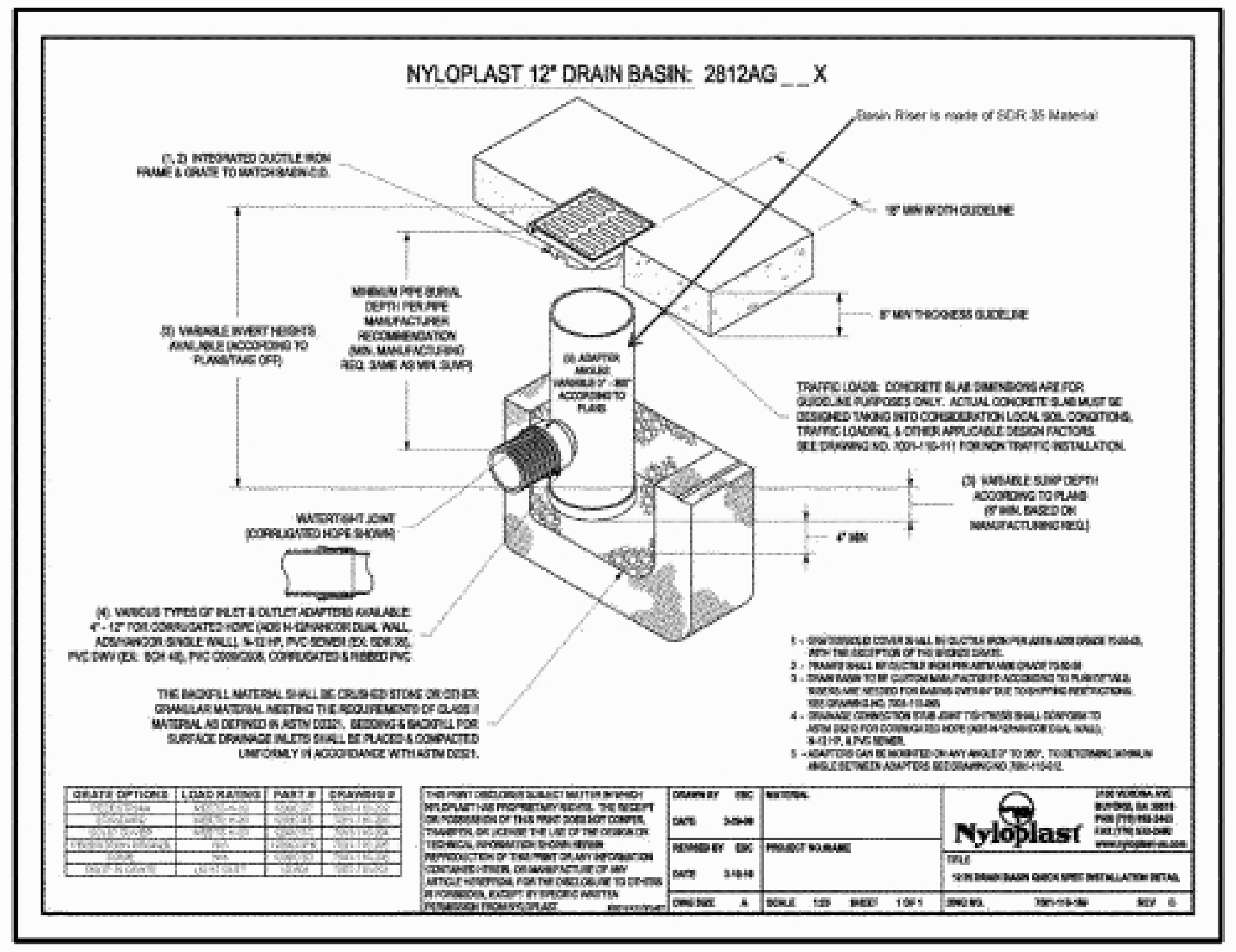
2ND. CITY SUBMITTAL

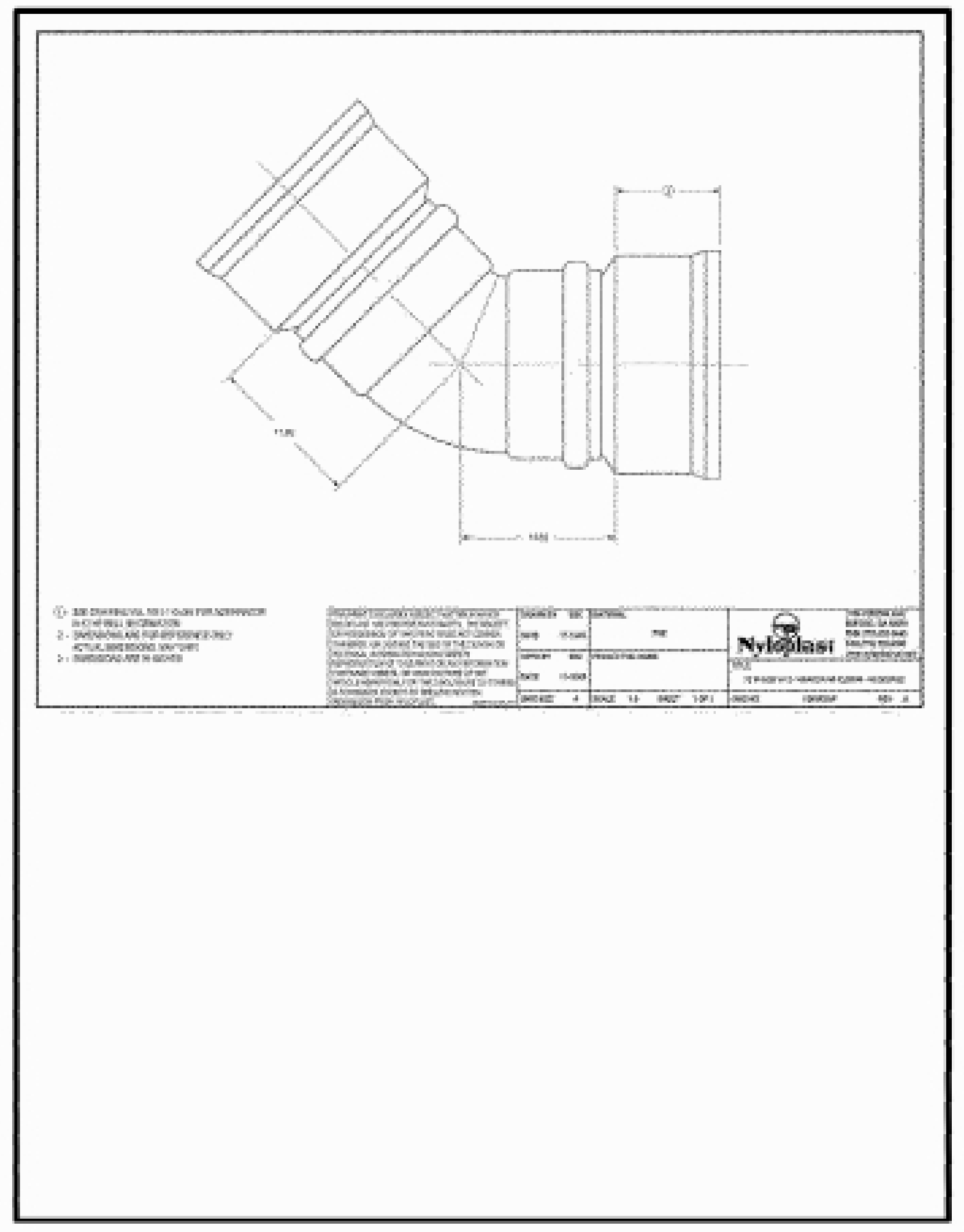
DATE: AUGUST 01, 2016 ORB # 15-218

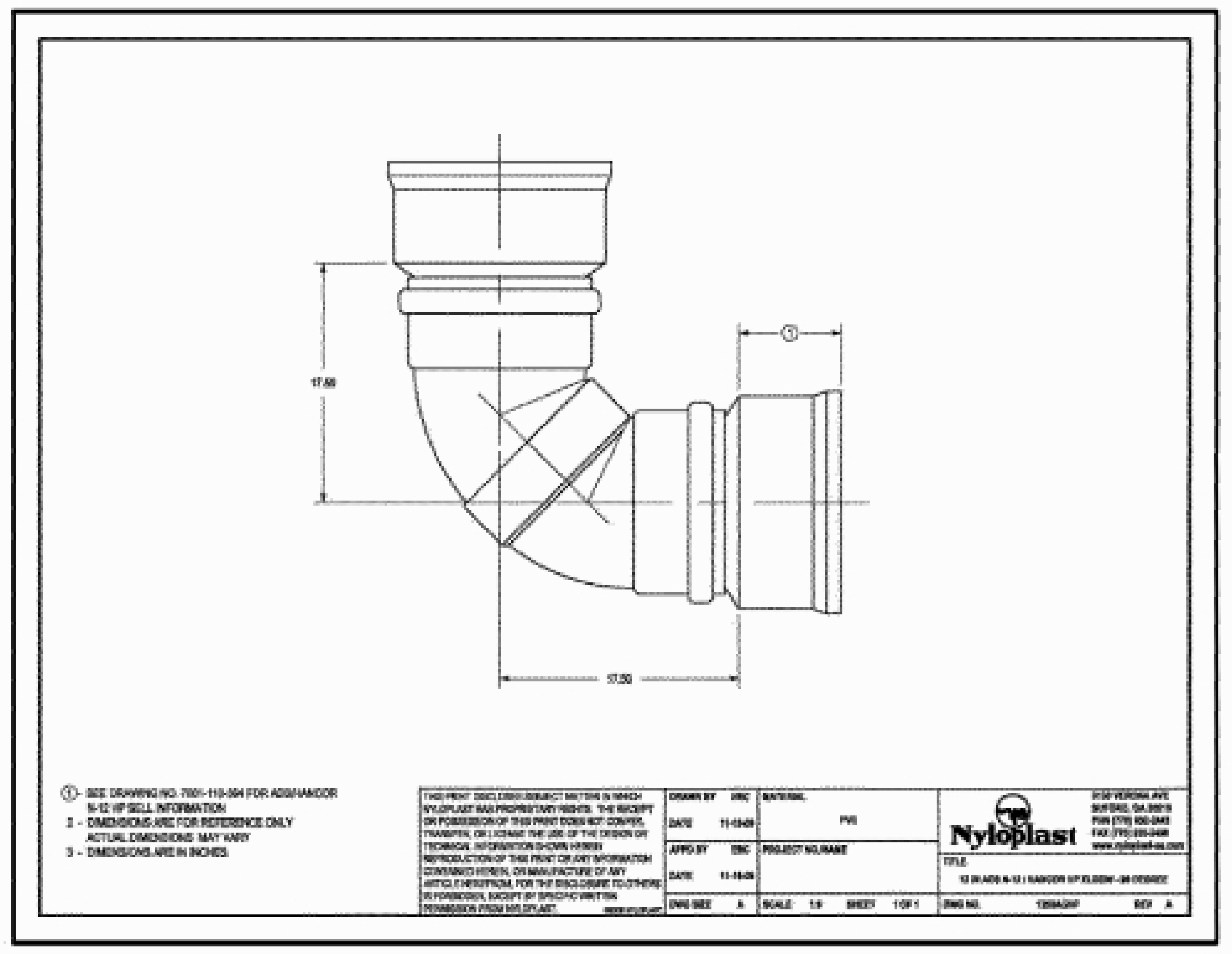


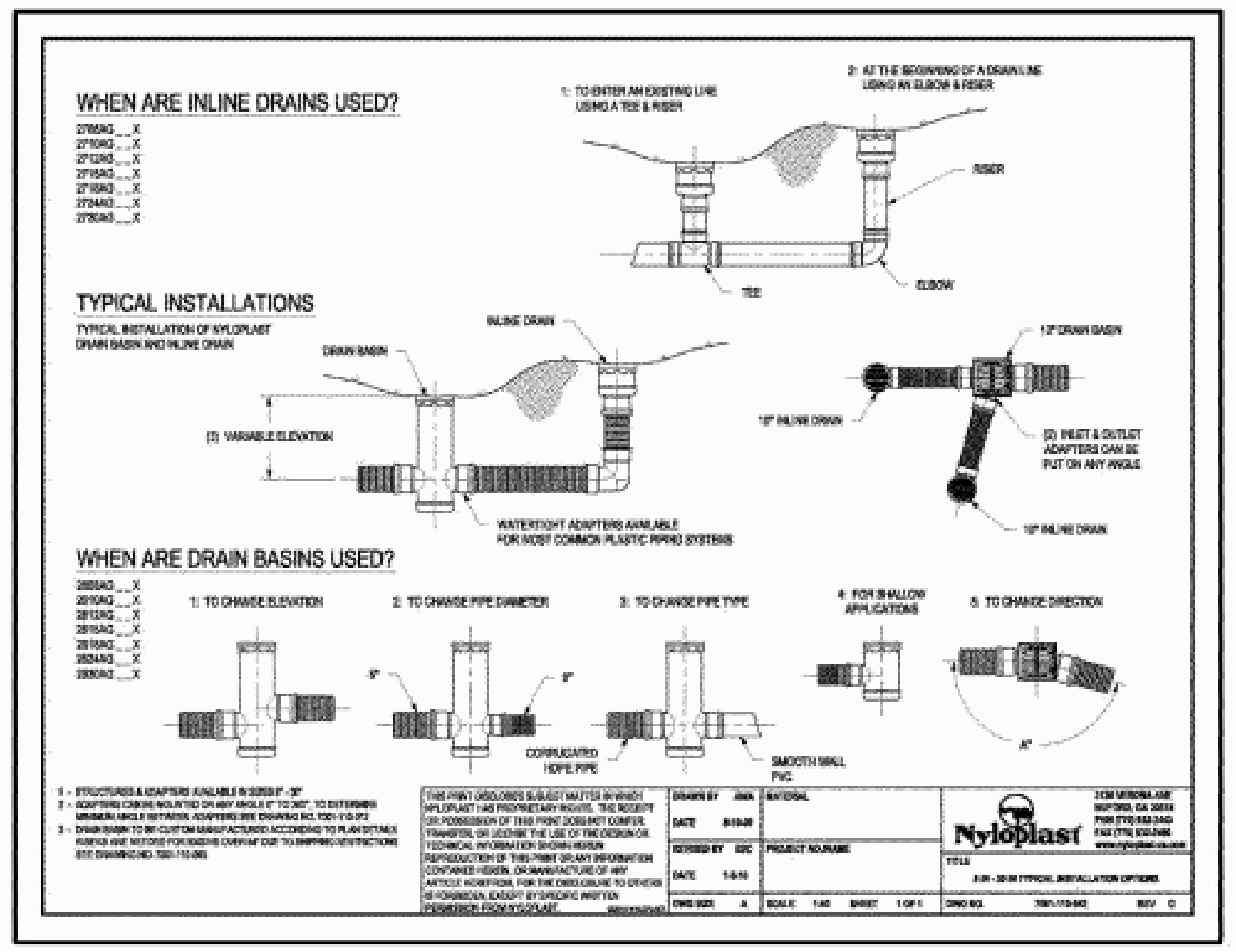
TRAFFIC LOADS: CONCRETE SLAB DIMENSIONS ARE FOR GUIDELINE PURPOSES ONLY. ACTUAL CONCRETE SLAB MUST BE DESIGNED TAKING INTO CONSIDERATION LOCAL SOIL CONDITIONS, TRAFFIC LOADING, & OTHER APPLICABLE DESIGN FACTORS. SEE DRAWING NO. 7001-110-111 FOR NON TRAFFIC INSTALLATION.

(4) VARIOUS TYPES OF INLET & OUTLET ADAPTERS AVAILABLE: 4" - 12" FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL, ADS/HANCOR SINGLE WALL), N-12 HP, PVC SEWER (EX: SDR 35), PVC DWV (EX: SCH 40), PVC C900/C905, CORRUGATED & RIBBED PVC

THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS I MATERIAL AS DEFINED IN ASTM D2321. BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN ACCORDANCE WITH ASTM D2321.







WHEN ARE INLINE DRAINS USED?

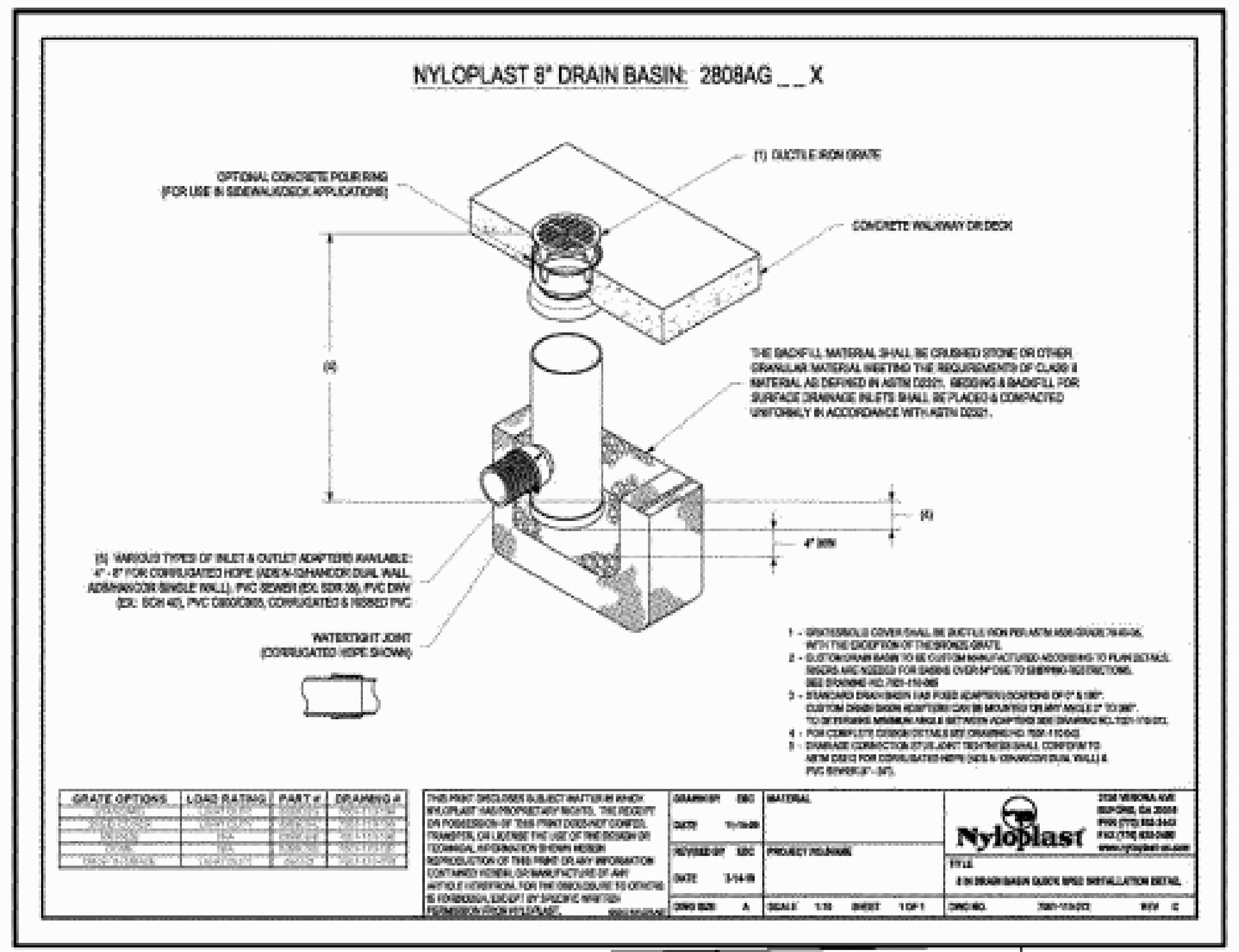
- 2706AG _ _ X
- 2710AG _ _ X
- 2712AG _ _ X
- 2715AG _ _ X
- 2718AG _ _ X
- 2724AG _ _ X
- 2730AG _ _ X

TYPICAL INSTALLATIONS

TYPICAL INSTALLATION OF NYLOPLAST DRAIN BASIN AND INLINE DRAIN

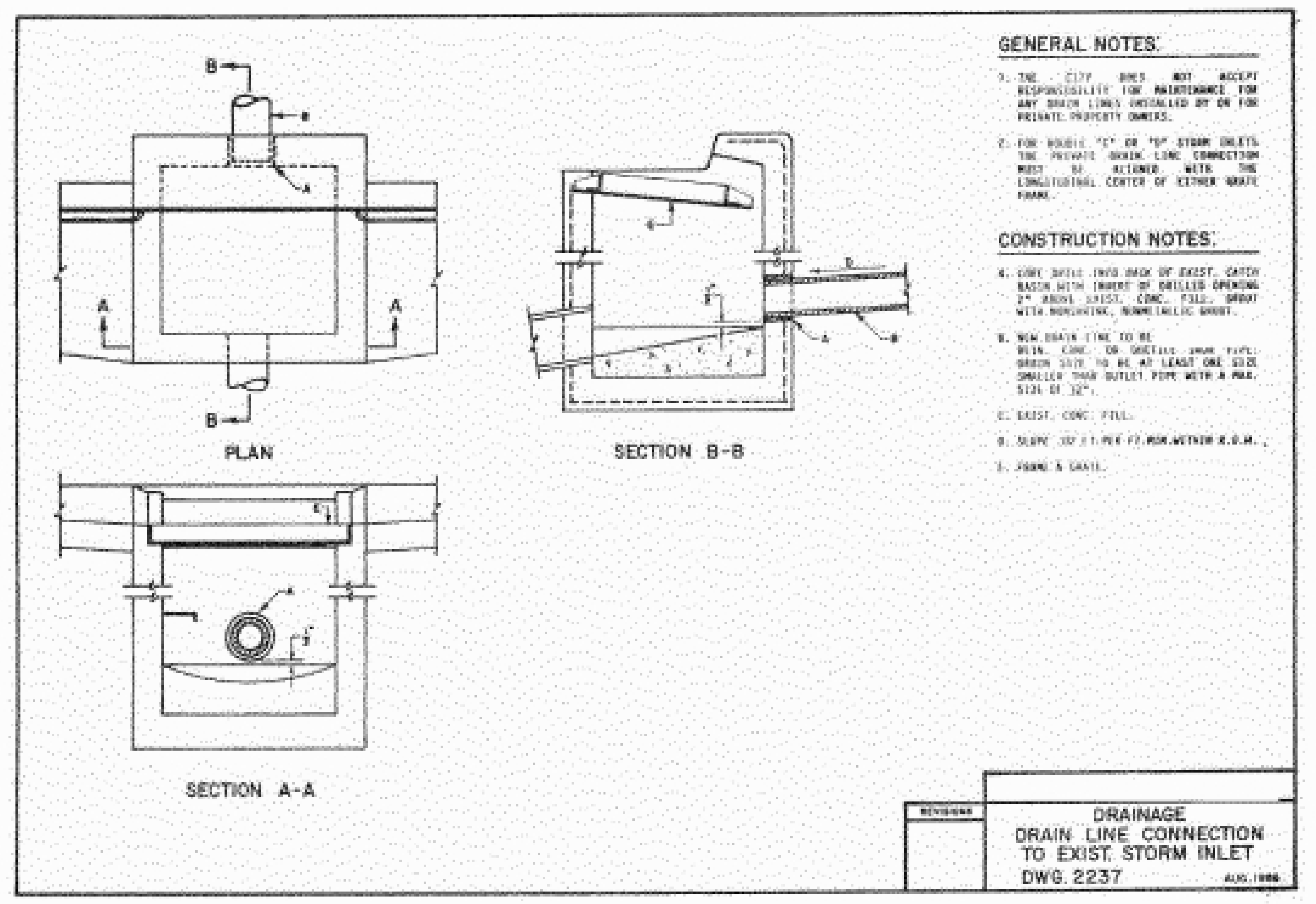
WHEN ARE DRAIN BASINS USED?

- 2808AG _ _ X
- 2810AG _ _ X
- 2812AG _ _ X
- 2815AG _ _ X
- 2818AG _ _ X
- 2824AG _ _ X
- 2830AG _ _ X



THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS I MATERIAL AS DEFINED IN ASTM D2321. BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN ACCORDANCE WITH ASTM D2321.

(5) VARIOUS TYPES OF INLET & OUTLET ADAPTERS AVAILABLE: 4" - 8" FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL, ADS/HANCOR SINGLE WALL), PVC SEWER (EX: SDR 35), PVC DWV (EX: SCH 40), PVC C900/C905, CORRUGATED & RIBBED PVC



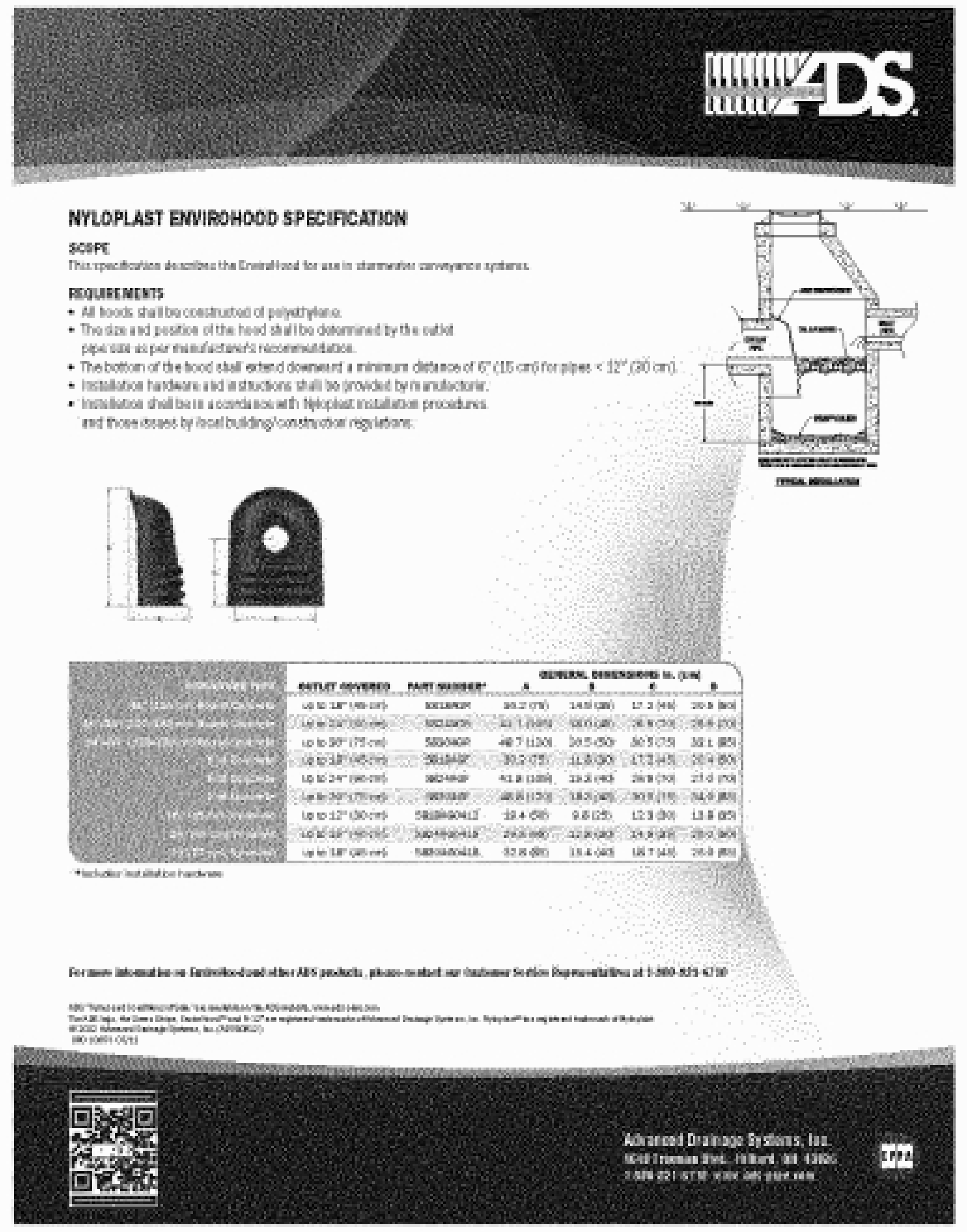
GENERAL NOTES:

1. THE CITY DOES NOT ACCEPT RESPONSIBILITY FOR MAINTENANCE FOR ANY DRAIN LINES INSTALLED BY OR FOR PRIVATE PROPERTY OWNERS.
2. FOR DOUBLE "C" OR "D" STORM INLETS THE PRIVATE DRAIN LINE CONNECTION MUST BE ALIGNED WITH THE LONGITUDINAL CENTER OF EITHER GRATE FRAME.

CONSTRUCTION NOTES:

A. CORE DRILL INTO BACK OF EXIST. CATCH BASIN WITH INVERT OF DRILLED OPENING 2" ABOVE EXIST. CONC. FILL. GROUT WITH NONSHRINK, NONMETALLIC GROUT.
B. NEW DRAIN LINE TO BE RCP, CONC. OR DUCTILE IRON PIPE. DRAIN SIZE TO BE AT LEAST ONE SIZE SMALLER THAN OUTLET PIPE WITH A MAX. SIZE OF 12".
C. EXIST. CONC. FILL.
D. SLOPE [illegible] PER FT. MIN. WITHIN R.O.W.
E. FRAME & GRATE.

DRAINAGE
DRAIN LINE CONNECTION
TO EXIST. STORM INLET
DWG. 2237
AUG. 1986



NYLOPLAST ENVIROHOOD SPECIFICATION

SCOPE

This specification describes the EnviroHood for use in stormwater conveyance systems.

REQUIREMENTS

- All hoods shall be constructed of polyethylene.
- The size and position of the hood shall be determined by the outlet pipe size as per manufacturer's recommendation.
- The bottom of the hood shall extend downward a minimum distance of 6" (15 cm) for pipes < 12" (30 cm).
- Installation hardware and instructions shall be provided by manufacturer.
- Installation shall be in accordance with Nyloplast installation procedures and those issued by local building/construction regulations.

*Includes installation hardware

For more information on EnviroHood and other ADS products, please contact our Customer Service Representatives at 1-800-821-6710

Advanced Drainage Systems, Inc.
4640 Trueman Blvd., Hilliard, OH 43026
1-800-821-6710 www.ads-pipe.com

N-12 HP STORM TRENCH INSTALLATION DETAIL

DRAWN BY WCWJ

DATE 1-23-16

1-LAYOUT-1-07-16

SHEET # C3

JOB # 21331

DAVID SOULE
NEW MEXICO
14522

7/28/16

DAVID SOULE
P.E. #14522