CITY OF ALBUQUERQUE

April 1, 2015

Fred C. Arfman, P.E.
Isaacson & Arfman, P.A.
128 Monroe St NE
Albuquerque, New Mexico 87108

RE: **Hope Plaza Subdivision**
Grading Certification Lots 1, 2, 4-6
Engineers Stamp Date 4/28/14 (C20D064)
Certification Dated 1-20-15

Dear Mr. Arfman,

Based upon the information provided in your submittal received 3-30-15, the above referenced certification is accepted for Building Permit approval.

If you have any questions, please contact me at 924-3695 or Rudy Rael at 924-3977.

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Hydrology
Planning Department

RR/RH
C: 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: Hope Plaza Subdivision Building Permit #: _____ City Drainage #: C-20/D064

DRB#: 1006520 EPC#: _____ Work Order#: PWO # 745785

Legal Description: Lots 1 thru 6, Hope Plaza (LESS LOT 3)

City Address: 8700, 8701, 8704, 8705, 8708 ~~& 8709~~, Hope Court NE

Engineering Firm: Isaacson & Arfman, P.A. Contact: Fred C. Arfman

Address: 128 Monroe Street NE - Albuquerque, NM 87108

Phone#: (505) 268-8828 Fax#: _____ E-mail: freda@iacivil.com

Owner: Hopeful Dirt, LLC Contact: H. William Fanning

Address: 122 Tulane Drive SE - Albuquerque, NM 87106

Phone#: (505) 338-2286 Fax#: _____ E-mail: _____

Architect: _____ Contact: _____

Address: _____

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

Surveyor: Surv-Tek, Inc. Contact: Russ P. Hugg

Address: 9384 Valley View Drive NW - Albuquerque, NM 87114

Phone#: (505) 897-3366 Fax#: (505) 897-3377 E-mail: _____

Contractor: Universal Contractors Contact: Gilbert Luna

Address: _____

Phone#: 4884-0400 Fax#: _____ E-mail: universalluna@aol.com

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT
___ DRAINAGE PLAN 1st SUBMITTAL
___ DRAINAGE PLAN RESUBMITTAL
___ CONCEPTUAL G & D PLAN
___ GRADING PLAN
___ EROSION & SEDIMENT CONTROL PLAN (ESC)
X 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
___ 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
___ BUILDING PERMIT APPROVAL
___ GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ WORK ORDER APPROVAL
X GRADING CERTIFICATION
___ SO-19 APPROVAL
___ ESC PERMIT APPROVAL
___ ESC CERT. ACCEPTANCE
___ OTHER (SPECIFY)

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

DATE SUBMITTED: REV.: MARCH 26, 2015 January 20, 2015 By: Fred C. Arfman, PE FA

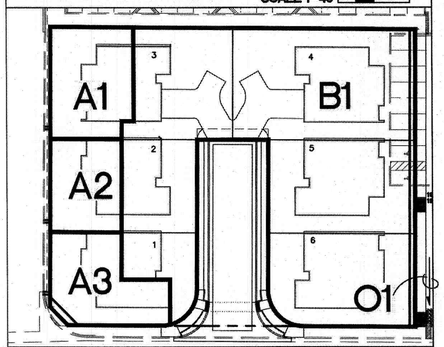
Isaacson & Arfman, P.A.

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

DRAINAGE BASINS

SCALE 1"=40'



BASIN NO. A1	DESCRIPTION			
Area of basin flows =	2849 SF	=	0.1 Ac.	
The following calculations are based on Treatment areas as shown in table to the right			LAND TREATMENT	
Sub-basin Weighted Excess Precipitation (see formula above)			A =	0%
Weighted E	=	2.17 in.	B =	8%
Sub-basin Volume of Runoff (see formula above)			C =	7%
V_{360}	=	515 CF	D =	85%
Sub-basin Peak Discharge Rate: (see formula above)				
Q_P	=	0.3 cfs		

BASIN NO. A2	DESCRIPTION			
Area of basin flows =	2080 SF	=	0.0 Ac.	
The following calculations are based on Treatment areas as shown in table to the right			LAND TREATMENT	
Sub-basin Weighted Excess Precipitation (see formula above)			A =	0%
Weighted E	=	2.17 in.	B =	8%
Sub-basin Volume of Runoff (see formula above)			C =	7%
V_{360}	=	376 CF	D =	85%
Sub-basin Peak Discharge Rate: (see formula above)				
Q_P	=	0.2 cfs		

BASIN NO. A3	DESCRIPTION			
Area of basin flows =	2725 SF	=	0.1 Ac.	
The following calculations are based on Treatment areas as shown in table to the right			LAND TREATMENT	
Sub-basin Weighted Excess Precipitation (see formula above)			A =	0%
Weighted E	=	2.17 in.	B =	8%
Sub-basin Volume of Runoff (see formula above)			C =	7%
V_{360}	=	493 CF	D =	85%
Sub-basin Peak Discharge Rate: (see formula above)				
Q_P	=	0.3 cfs		

BASIN NO. B1	DESCRIPTION			
Area of basin flows =	21986 SF	=	0.5 Ac.	
The following calculations are based on Treatment areas as shown in table to the right			LAND TREATMENT	
Sub-basin Weighted Excess Precipitation (see formula above)			A =	0%
Weighted E	=	2.17 in.	B =	8%
Sub-basin Volume of Runoff (see formula above)			C =	7%
V_{360}	=	3906 CF	D =	85%
Sub-basin Peak Discharge Rate: (see formula above)				
Q_P	=	2.4 cfs		

SIDEWALK CULVERT CALCS.

ORIFICE EQUATION - SIDEWALK CULVERT (2' WIDE X 8" HIGH)

The Orifice Equation is used to calculate the Flow at the opening of the proposed sidewalk culvert

$Q = C^*A^*(2^*g^*h)^{0.5}$

Where				
Q	=	3.7	cfs	
C	=	0.6		(indicating that the opening will function at 60% capacity)
A	=	1.34	sq.ft.	
g	=	32.2	ft/sec^2	
h	=	0.33	ft	depth of flow at opening from the center of culvert

THE 0.77 ACRE OFF-SITE BASIN DRAINING TO THIS SW CULVERT GENERATES 2.9 CFS < 3.7 CFS. OK

GENERAL NOTES

A. COORDINATE WORK WITH SITE PLAN, UTILITY PLAN, AND DEMOLITION PLAN.

B. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION. REPORT ALL DISCREPANCIES TO THE ENGINEER AND VERIFY THE ENGINEER'S INTENT BEFORE PROCEEDING.

C. FOR ALL ACCESSIBLE ROUTES, MAXIMUM ALLOWABLE CROSS SLOPE IS 2.0% AND MAXIMUM LONGITUDINAL SLOPE WITHOUT RAMP IS 5.0%. FOLLOW ALL ADA ACCESSIBILITY GUIDELINES OR CITY CODES, WHICHEVER IS MORE STRINGENT.

D. ALL TRASH, DEBRIS, & SURFACE VEGETATION SHALL BE CLEARED AND LEGALLY DISPOSED OF OFFSITE.

E. ALL SUBGRADE, OVEREXCAVATION, AND FILL SHALL BE PLACED AND / OR COMPACTED PER THE GEOTECHNICAL REPORT AND CITY OF ALBUQUERQUE SPECIFICATIONS. *

F. PROPOSED SPOT AND CONTOUR ELEVATIONS SHOWN REPRESENT TOP OF FINISH MATERIAL (I.E. TOP OF CONCRETE, TOP OF CONCRETE BUILDING PAD, TOP OF PAVEMENT MATERIAL, TOP OF LANDSCAPING MATERIAL, ETC.). CONTRACTOR SHALL GRADE, COMPACT SUBGRADE AND DETERMINE EARTHWORK ESTIMATES BASED ON ELEVATIONS SHOWN MINUS FINISH MATERIAL THICKNESSES.

G. IF FIELD GRADE ADJUSTMENTS ARE REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

H. EXISTING UTILITY LINES ARE SHOWN IN AN APPROXIMATE MANNER ONLY AND MAY BE INCOMPLETE OR OBSOLETE. SUCH LINES MAY OR MAY NOT EXIST WHERE SHOWN OR NOT SHOWN. CONTRACTOR SHALL CONTACT NM-811 FOR UTILITY LINE SPOTS TWO WORKING DAYS PRIOR TO CONDUCTING SITE FIELD WORK. CONTRACTOR SHALL FIELD VERIFY AND LOCATE ALL UTILITIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION. CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES.

I. OWNER WILL PROVIDE SOIL TESTING AND INSPECTION SERVICES DURING EARTHWORK OPERATIONS. CONTRACTOR SHALL ALLOW TESTING LABS TO INSPECT AND APPROVE COMPACTED SUBGRADES AND FILL LAYERS BEFORE FURTHER CONSTRUCTION WORK IS DONE. SHOULD COMPACTION TESTS INDICATE INADEQUATE DENSITY, CONTRACTOR SHALL PROVIDE ADDITIONAL COMPACTION AND TESTING AT THE CONTRACTOR'S SOLE EXPENSE.

J. OWNER HAS ESTABLISHED PROPERTY BOUNDARY CORNERS. CONTRACTOR SHALL PROVIDE ALL OTHER CONSTRUCTION STAKING. CONTRACTOR SHALL LOCATE AND PRESERVE ALL BOUNDARY CORNERS AND REPLACE ANY LOST OR DISTURBED CORNERS AT CONTRACTOR'S SOLE EXPENSE.

K. THE ENVIRONMENTAL PROTECTION AGENCY (EPA) AND THE CITY OF ALBUQUERQUE REQUIRE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP), AN NDPES PERMIT, AND AN EROSION AND SEDIMENT CONTROL (ESC) PERMIT FOR PROJECTS WHERE CONSTRUCTION ACTIVITIES MEET THE EPA THRESHOLD. (SWPPP, NPDES PERMIT, AND ESC PLAN BY OTHERS.) A CITY-APPROVED ESC PERMIT MUST BE INCLUDED WITH THE CONTRACTOR'S SUBMITTAL FOR A ROUGH GRADING, GRADING, PAVING, BUILDING, OR WORK ORDER PERMIT.

L. ADJUST RIMS OF EXISTING UTILITY FEATURES AS NECESSARY TO MATCH NEW GRADES.

M. WHERE GRADES BETWEEN NEW AND EXISTING ARE SHOWN AS 'MATCH' OR '±', TRANSITIONS SHALL BE SMOOTH.

DRAINAGE CONCEPT

THE SITE DRAINAGE WILL DISCHARGE FROM THE PROPOSED DEVELOPMENT TO SIGNAL AVENUE VIA THE PROPOSED HOPE COURT ACCESS ROAD (BASIN B1) AND THE EXISTING CHURCH ACCESS ROAD / DRAINAGE EASEMENT (BASINS A1, A2 AND A3). BASED ON THE 100-YEAR 6-HOUR CALCULATIONS, THE DEVELOPED SITE WILL GENERATE 3.2 CFS:

BASIN A1: APPROXIMATELY 0.3 CFS WILL FREE DISCHARGE TO THE EXISTING CHURCH ACCESS ROAD.

BASIN A2: APPROXIMATELY 0.2 CFS WILL FREE DISCHARGE TO THE EXISTING CHURCH ACCESS ROAD.

BASIN A3: APPROXIMATELY 0.3 CFS WILL FREE DISCHARGE TO THE EXISTING CHURCH ACCESS ROAD.

BASIN B1: APPROXIMATELY 2.4 CFS WILL FREE DISCHARGE TO SIGNAL AVENUE VIA HOPE COURT.

TOTAL DISCHARGE TO EXISTING CHURCH ACCESS ROAD / DRAINAGE EASEMENT = B2+B3+B4 = 0.8 CFS.

BASIN O1 (OFF-SITE EAST): APPROXIMATELY 2.9 CFS WILL FREE DISCHARGE TO SIGNAL AVE. VIA PROPOSED COVERED SIDEWALK CULVERT.

CALCULATIONS: Hope Plaza : April 18, 2014

Based on Drainage Design Criteria for City of Albuquerque Section 22.2, DPM, Vol 2, dated Jan., 1993

ON-SITE

AREA OF SITE: 29643 SF = 0.68

100-year, 6-hour

HISTORIC FLOWS:				DEVELOPED FLOWS:				EXCESS PRECIP:	
	Treatment SF	%			Treatment SF	%	Precip. Zone 3		
Area A =	0	0%		Area A =	0	0%	E_A = 0.66		
Area B =	29643	100%		Area B =	2371	8%	E_B = 0.92		
Area C =	0	0%		Area C =	2075	7%	E_C = 1.29		
Area D =	0	0%		Area D =	25197	85%	E_D = 2.36		
Total Area =	29643	100%		Total Area =	29643	100%			

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

Weighted E = $\frac{E_A A_A + E_B A_B + E_C A_C + E_D A_D}{A_A + A_B + A_C + A_D}$

Historic E	=	0.92 in.	Developed E	=	2.17 in.

On-Site Volume of Runoff: V360 = $E^*A / 12$

Historic V_{360}	=	2273 CF	Developed V_{360}	=	5360 CF

On-Site Peak Discharge Rate: $Q_P = Q_{pA}A_A + Q_{pB}A_B + Q_{pC}A_C + Q_{pD}A_D / 43{,}560$

For Precipitation Zone 3

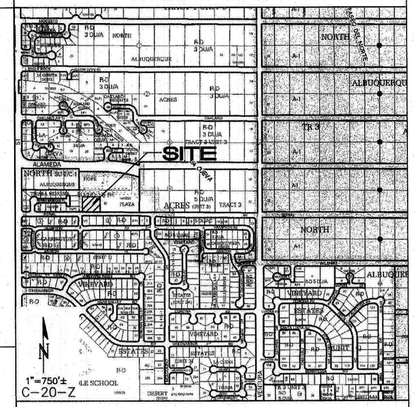
Q_{pA}	=	1.87	Q_{pC}	=	3.45
Q_{pB}	=	2.60	Q_{pD}	=	5.02

Historic Q_P	=	1.8 CFS	Developed Q_P	=	—	3.2 CFS

KEYED NOTES

1. HOPE COURT (ROLL CURB & GUTTER) AND INTERSECTION AT SIGNAL AVE. TO BE CONSTRUCTED BY PUBLIC WORK ORDER (COA PROJECT NO. 745785). ELEVATIONS SHOWN FOR INFORMATION ONLY.
2. EXISTING EARTH SWALE WITH INTERMITTENT CHECK DAMS. DO NOT DISTURB.
3. NEW COVERED SIDEWALK CURVERT TO PASS FLOW TO SIGNAL AVE. TO BE CONSTRUCTED BY PUBLIC WORK ORDER (COA PROJECT NO. 745785).
4. INSTALL 12" SQUARE ADS INLINE DRAIN WITH HINGED GRATE AT RIM ELEVATION SHOWN. EXTEND 4"ø OUTLET PIPE THROUGH WALL WITH INVERT 0.5' ABOVE TOP OF ADJACENT EXISTING CURB. PROVIDE TURNED BLOCK IN CMU WALL 2" ABOVE DRAIN RIM ELEVATION FOR EMERGENCY OVERFLOW.
5. CONSTRUCT 1' WIDE (BOTTOM WIDTH) X 4" THICK 'U' SHAPED CONCRETE RUNDOWN FROM 4" PIPE OUTLET TO EXISTING CHURCH ACCESS ROAD TOP OF CURB. SLOPE = 2%. SEE SECTION AND DETAILS THIS SHEET.
6. CONSTRUCT TWO TERRACED (30" MAX. HEIGHT EACH) RETAINING WALLS TO ACHIEVE GRADE DIFFERENCE SHOWN. DESIGN BY OTHERS.
7. NEW PEDESTRIAN ACCESS WALK WITH TURNED-DOWN EDGE. GRADE TRANSITION RAMPS, PRIVATE COVERED SIDEWALK CULVERT AS SHOWN TO BE CONSTRUCTED IN COORDINATION WITH ADJACENT PROPERTY OWNER.
8. PERIMETER RETAINING/PRIVACY WALL (DESIGN BY OTHERS). MAX RETAIN = 4'.
9. ROOFS TO SHED FLOW TO E, W, & S. NO ROOF FLOW WILL DISCHARGE TO THE NORTH / ADJACENT PROPERTY.
10. 10'X10'X1' DEEP F.F.ROCK EROSION CONTROL AT BACK OF SIDEWALK CULVERT. MATCH FLOWLINE ELEVATIONS NORTH AND EAST.

VICINITY MAP



LEGEND

PROPOSED FLOW DIRECTION

F.F.= PROPOSED FINISH FLOOR ELEVATION

SUB-BASIN BOUNDARY

PROJECT DATA

PROPERTY: THE SITE IS AN UNDEVELOPED PROPERTY LOCATED WITHIN CITY OF ALBUQUERQUE ZONE MAP C-20-Z. THE SITE IS BOUND TO THE WEST BY A PRIVATE CHURCH ACCESS DRIVE, TO THE NORTH AND EAST BY EXISTING CHURCH PARKING, AND TO THE SOUTH BY SIGNAL AVE. NE.

PROPOSED IMPROVEMENTS: THE PROPOSED IMPROVEMENTS INCLUDE THE CONSTRUCTION OF A SIX UNIT RESIDENTIAL SUBDIVISION WITH AN ASSOCIATED ASPHALT PAVED ROAD.

LEGAL: LOTS 1 – 6, HOPE PLAZA, CITY OF ALBUQUERQUE, NEW MEXICO.

AREA: 29,643 SF (LOTS 1–6)

BENCHMARK: ALBUQUERQUE CONTROL SURVEY MONUMENT "7–C19", ELEVATION = 5485.723 (NAVD 1988)

OFF-SITE: NO OFF-SITE FLOW IMPACTS THIS PROPERTY.

FLOOD HAZARD: PER BERNALILLO COUNTY FIRM MAP #35001C0141G, THE SITE IS LOCATED WITHIN FLOODZONE 'X' (UNSHADED) DESIGNATED AS AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOODPLAIN.

SURVEYOR: RUSS P. HUGG, NMPS NO. 9750

DRAINAGE CERTIFICATION

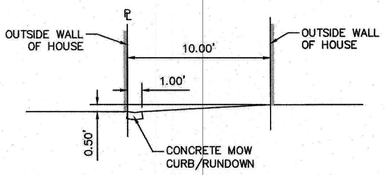
I, Fred C. Arfman, NMPE No. 7322, of the firm Isaacson & Arfman, PA, hereby certify that this project has been graded and will drain in substantial compliance with and in accordance with the design intent of the approved plan dated April 28, 2014. The record information edited onto the original design document has been obtained by Russ Hugg, NMPS No. 9750, of the firm Surv-Tek, Inc. I further certify that I have personally visited the project site on January 7, 2015 and have determined by visual inspection that the survey data provided is representative of actual site conditions and is true and correct to the best of my knowledge and belief. This certification is submitted in support of a request for Grading & Drainage Certification.

The record information presented hereon is not necessarily complete and intended only to verify substantial compliance of the grading and drainage aspects of this project. Those relying on this record document are advised to obtain independent verification of its accuracy before using it for any other purpose.

Fred C. Arfman NMPE 7322

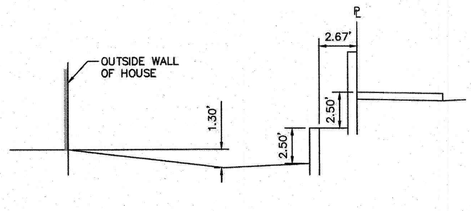
Date 01.20.2015

FRED C. ARFMAN NEW MEXICO 7322 PROFESSIONAL ENGINEER



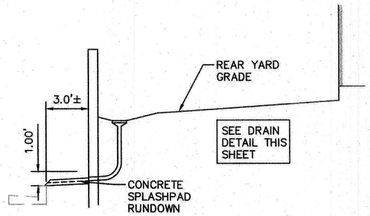
SECTION A-A

SCALE: 1"=5'



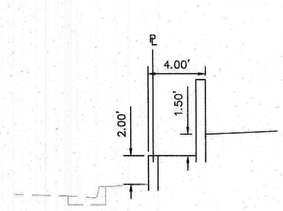
SECTION B-B

SCALE: 1"=5'



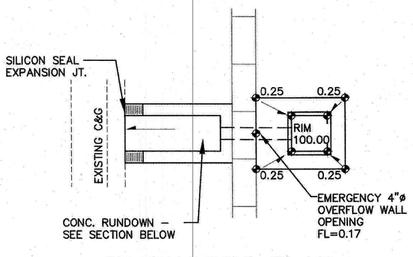
SECTION C-C

SCALE: 1"=5'



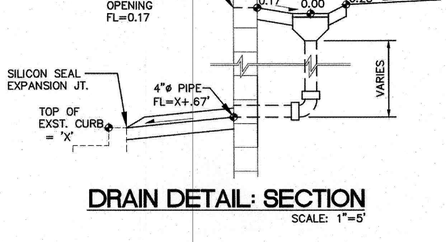
SECTION D-D

SCALE: 1"=5'



DRAIN DETAIL PLAN

SCALE: 1"=5'

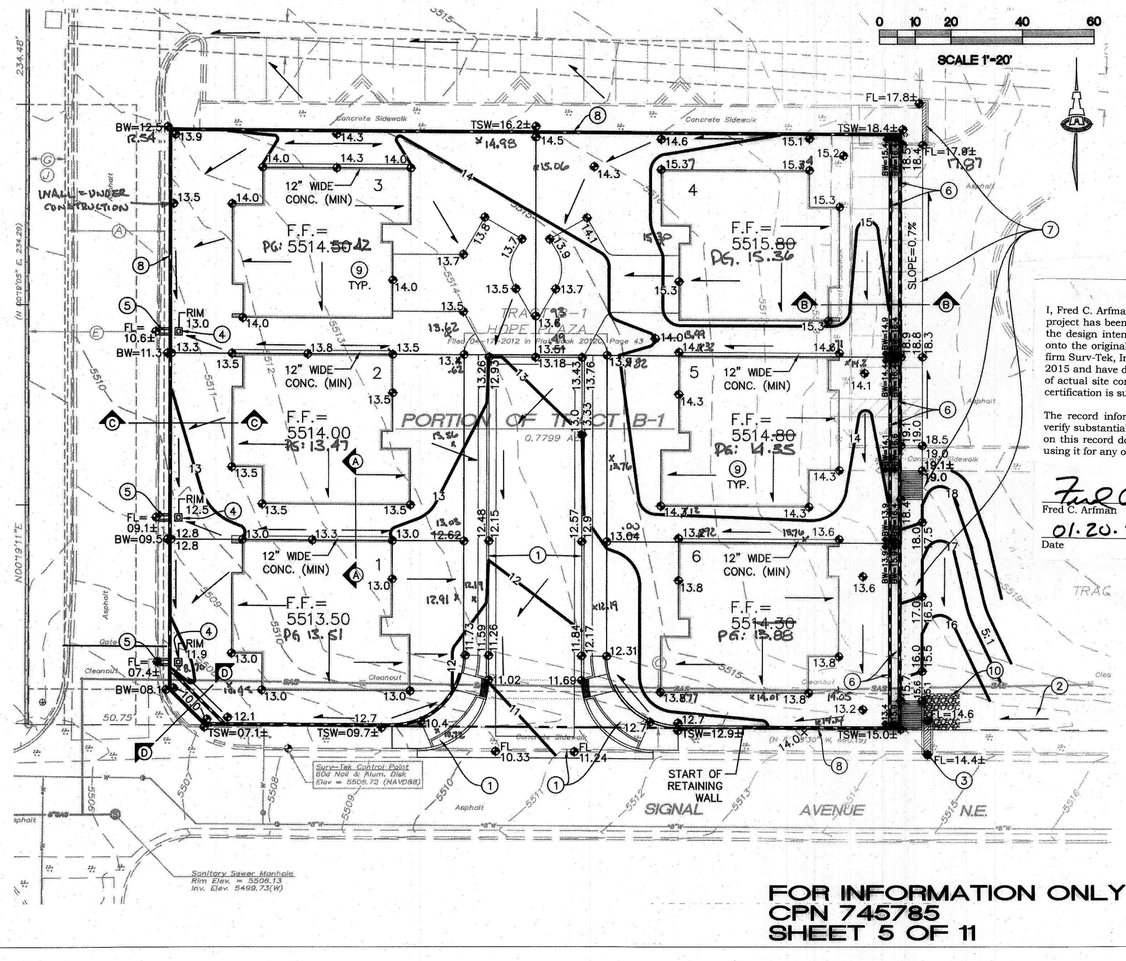


DRAIN DETAIL: SECTION

SCALE: 1"=5'

CONCRETE RUNDOWN

SCALE: 1"=5'



FOR INFORMATION ONLY
CPN 745785
SHEET 5 OF 11

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque, New Mexico 87108
Ph. 505-268-8828 www.iacivil.com

2014 CG-101.dwg Apr 28,2014

HOPE PLAZA SUBDIVISION

HOPEFUL DIRT, LLC.

GRADING & DRAINAGE PLAN

Date: 04/21/14	No.	Revision:	Date:	Job No. 2014
Drawn By: BJB/DEC				CG-101
Ckd By: FCA				SH. OF

M:\PROJECTS\2000-2099\2014\DWG\2014 CG-101.dwg, 4/28/2014 4:19:12 PM, thor