

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services



February 24, 2016

Richard J. Berry, Mayor

James D. Hughes, P.E.
Mark Goodwin & Associates
PO Box 90606
Albuquerque, NM, 87199

RE: Juan Tabo Hills Estates - M21D018 - DRB #1005278
Drainage Report Stamp Date: 2-10-2016 (Received 2-11-2016)
Grading and Drainage Plan Stamp Date: 2-22-2016

Dear Mr. Hughes:

Based upon the information provided in your submittal most recently received 2-22-2016, the above-referenced submittal is approved for Preliminary Plat.

The plan cannot be approved for Grading of the project, including work in the Arroyo, until the following items are completed:

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

- Approval of the CLOMR by FEMA.
- Concurrence from USACE that the project (within their jurisdiction) is allowed to proceed to construction.
- Approval of an ESC Plan for the project.
- Submittal of a Floodplain Permit.

Approval for "Rough Grading" of the site, excluding the arroyo, will require an approved Rough Grading ESC Plan.

If you have any questions, you can contact me at 924-3986. For questions regarding the ESC Permit, you can contact Mr. Curtis Cherne.

Sincerely,

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

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(Rev. 12/05)

PROJECT TITLE: Juan Tabo Hills Estates ZAP/DRG. FILE M-21D018
 DRB#: 1005278 EPC#: 1001370 WORK ORDER#: _____

LEGAL DESCRIPTION: Tract A Juan Tabo Hills West/Tract 1-A-1 Juan Tabo Hills Unit 2
 CITY ADDRESS: _____

ENGINEERING FIRM: Mark Goodwin & Associates, PA CONTACT: Doug Hughes
 ADDRESS: PO Box 90606 PHONE: 828-2200
 CITY, STATE: Albuquerque, NM ZIP CODE: 87199

OWNER: Juan Tabo Hills West, LLC CONTACT: Rex Wilson
 ADDRESS: PO BOX 9470 PHONE: 899-6768
 CITY, STATE: Albuquerque, NM ZIP CODE: 87119

ARCHITECT: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____
 CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: Aldrich Land Surveying CONTACT: Tim Aldrich
 ADDRESS: PO BOX 30701 PHONE: 328-3988
 CITY, STATE: Albuquerque, NM ZIP CODE: 87190

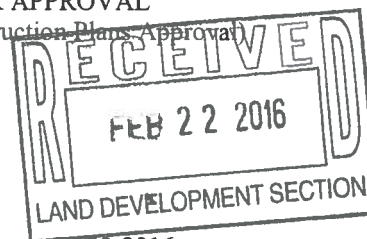
CONTRACTOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____
 CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:
 _____ DRAINAGE REPORT
 _____ DRAINAGE PLAN 1st SUBMITTAL
 X _____ DRAINAGE PLAN RESUBMITTAL
 _____ CONCEPTUAL G & D PLAN
 X _____ GRADING PLAN (Eng. stamp 01/10/16)
 _____ EROSION CONTROL PLAN
 _____ ENGINEER'S CERT (HYDROLOGY)
 _____ CLOMR/LOMR
 _____ TRAFFIC CIRCULATION LAYOUT
 _____ ENGINEER/ARCHITECT CERT (TCL)
 _____ ENGINEER/ARCHITECT (DRB SITE PLAN)
 _____ OTHER (Percolation Testing)

CHECK TYPE OF APPROVAL 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
 _____ FOUNDATION PERMIT APPROVAL
 _____ BUILDING PERMIT APPROVAL
 _____ CERTIFICATE OF OCCUPANCY (PERM)
 _____ CERTIFICATE OF OCCUPANCY (TEMP)
 X _____ GRADING PERMIT APPROVAL
 _____ PAVING PERMIT APPROVAL
 _____ WORK ORDER APPROVAL
 _____ OTHER (Construction Plans Approval)

WAS A PRE-DESIGN CONFERENCE ATTENDED:
 _____ YES
 _____ NO
 _____ COPY PROVIDED

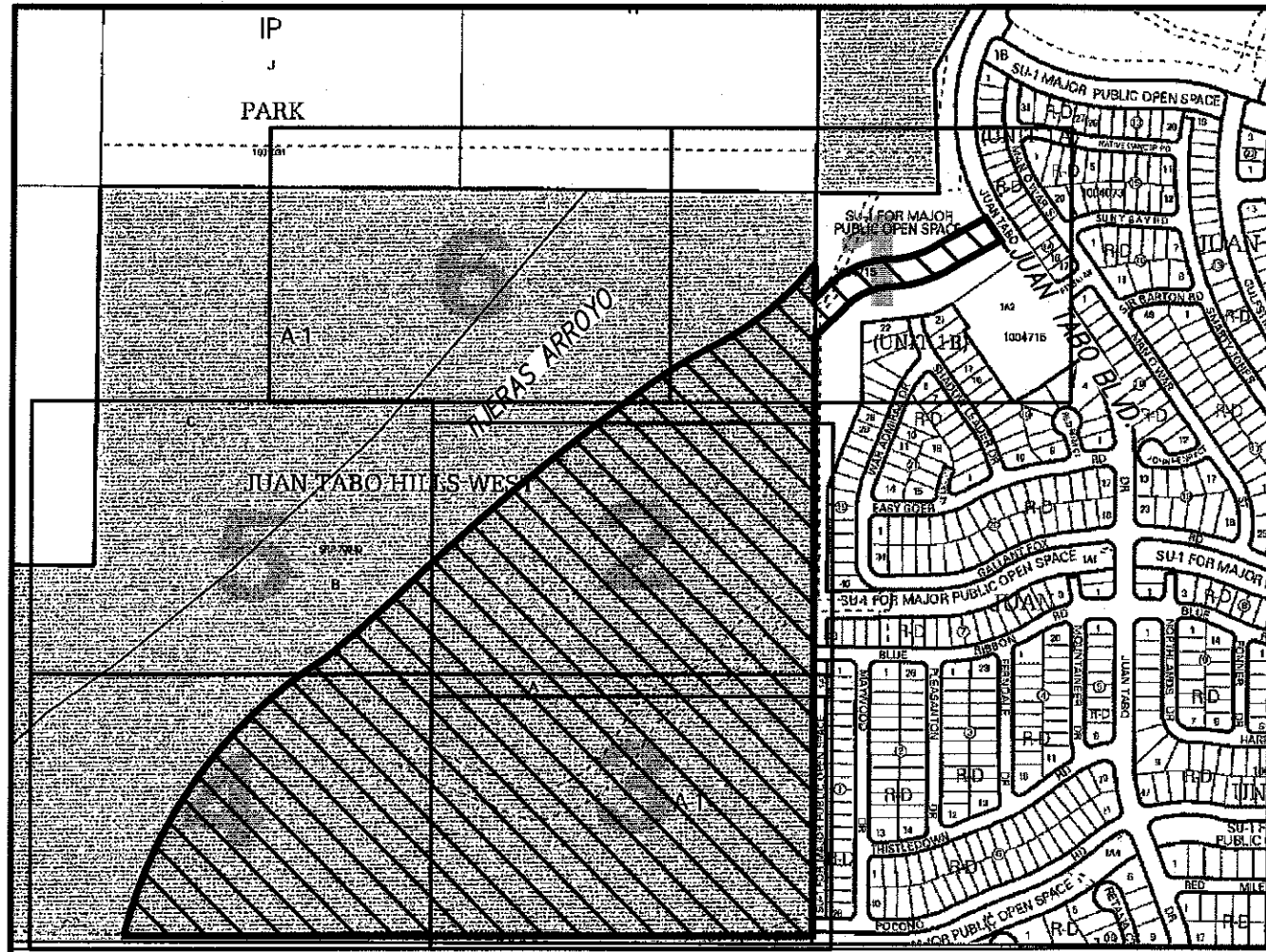
*(Drainage Report
received 2-11-16)*



SUBMITTED BY: Doug Hughes, PE DATE: 02-22-2016

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 define the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

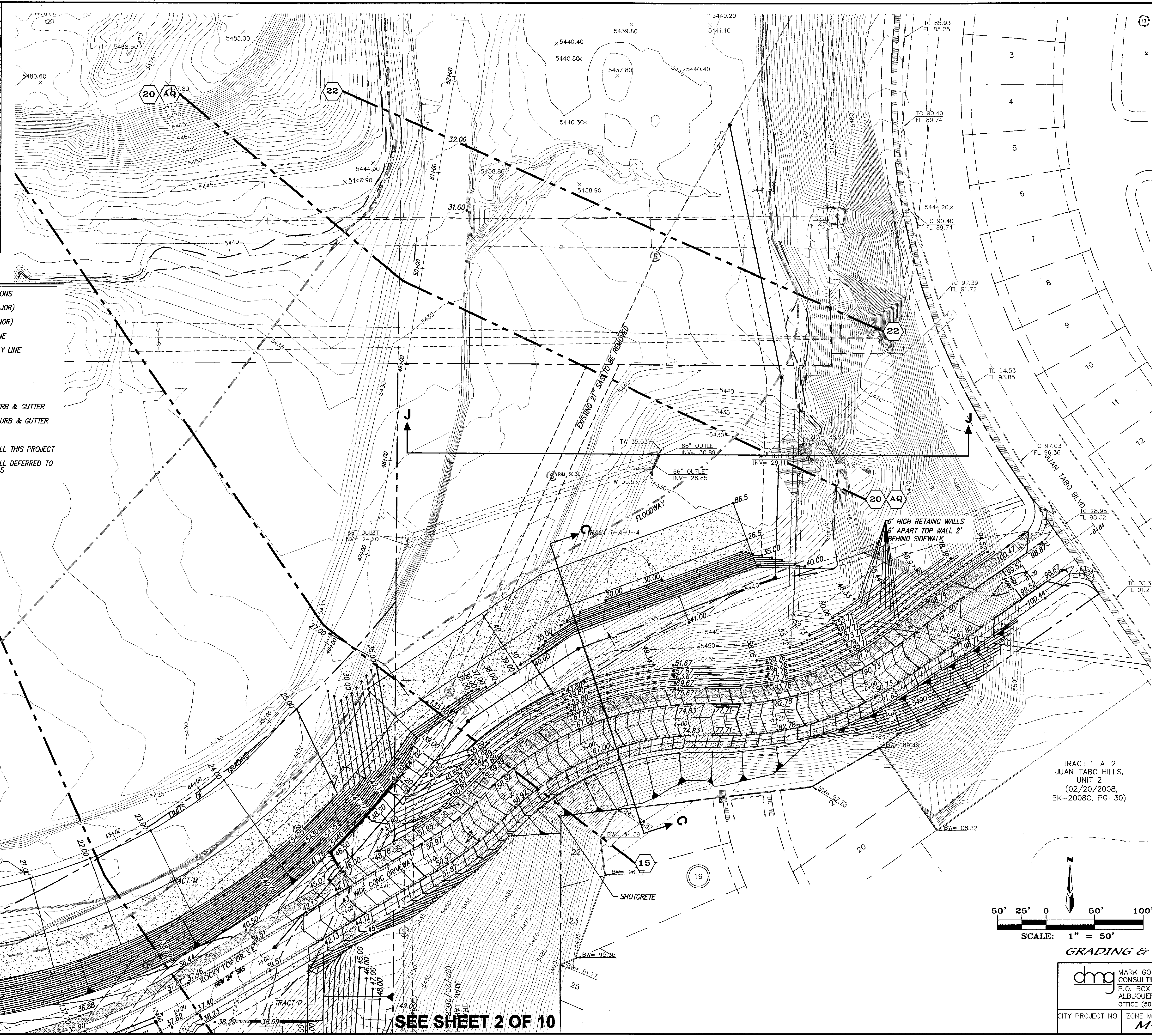
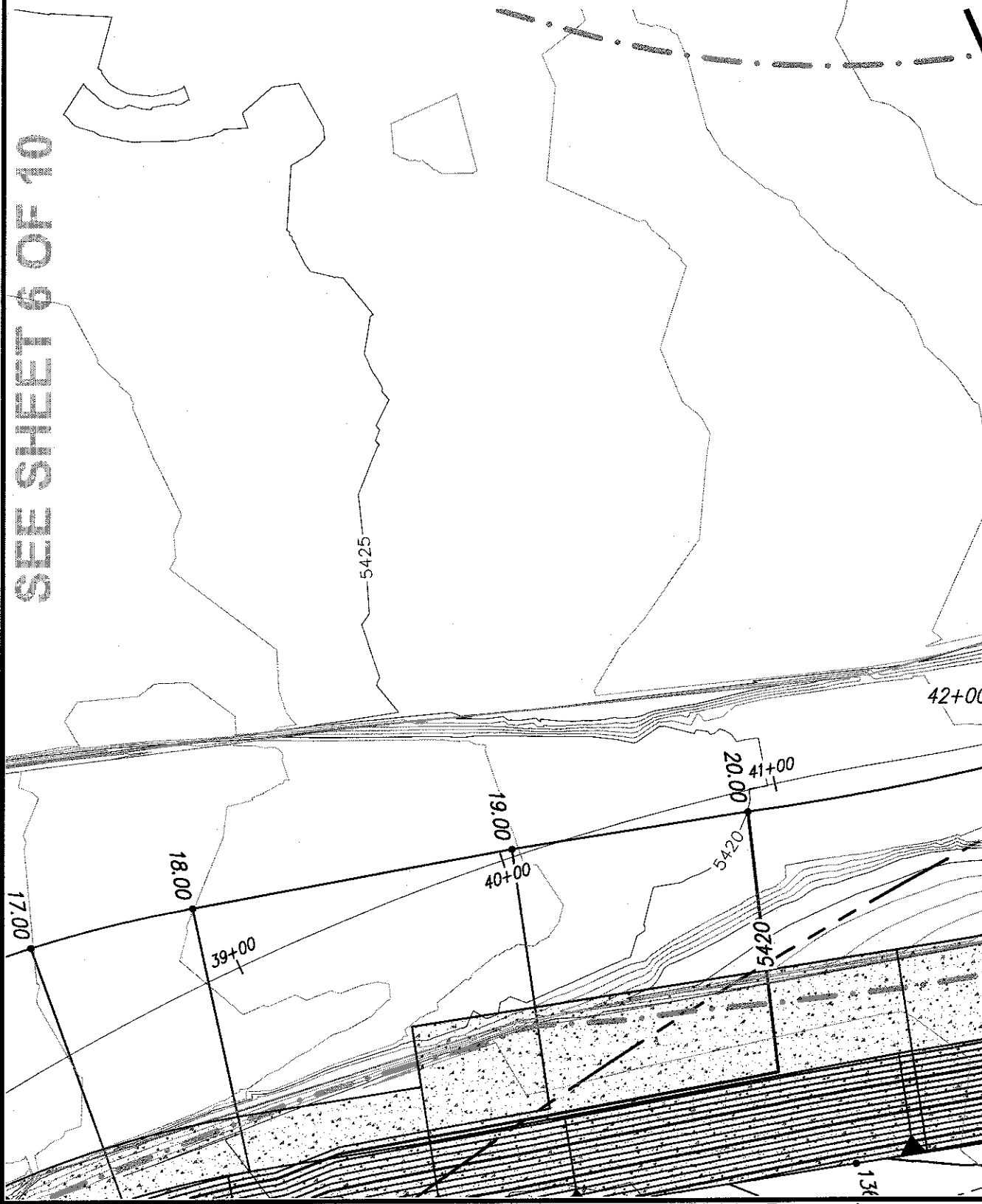
1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.



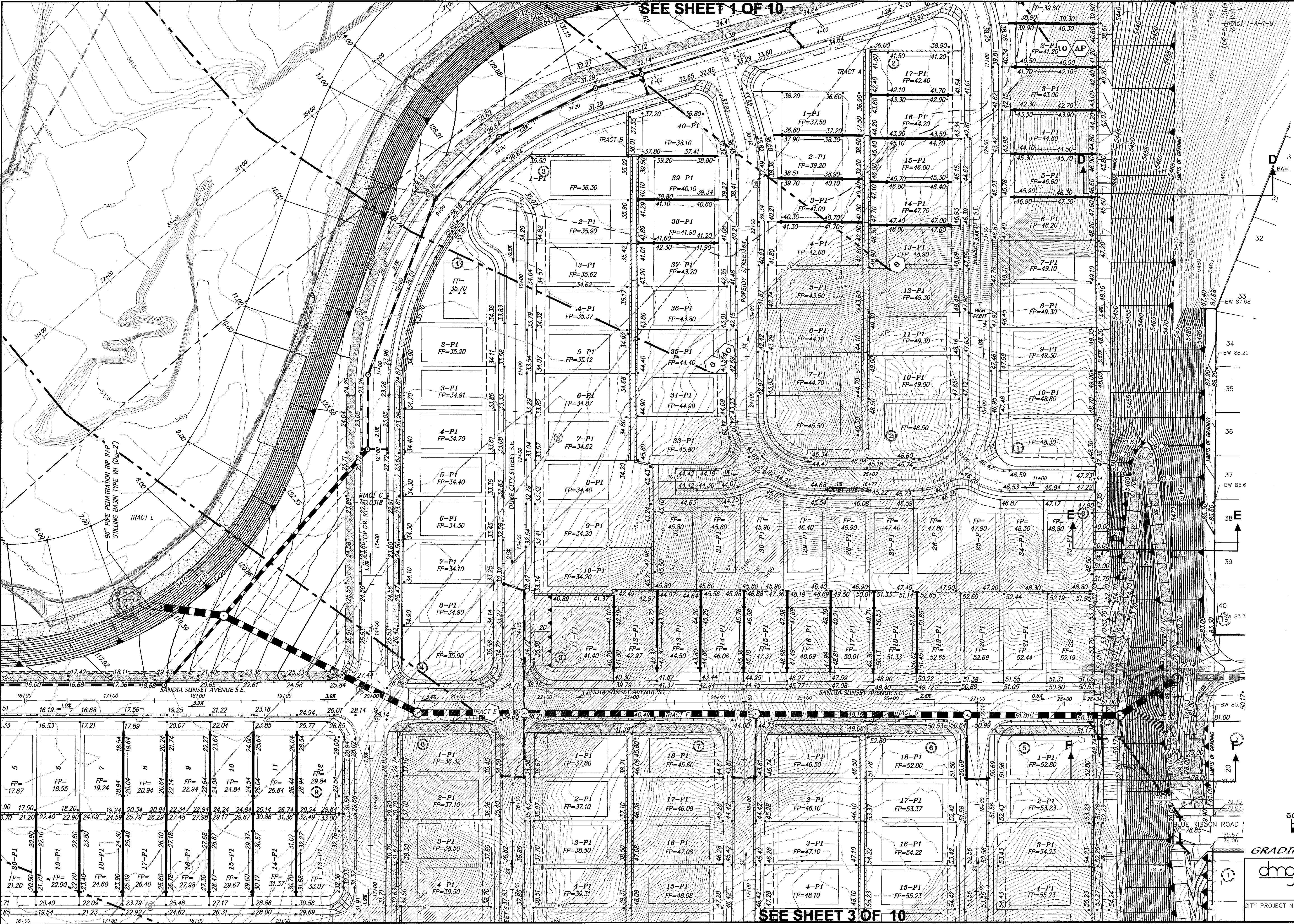
VICINITY MAP ZONE MAP: M-21

- LEGEND**
- | | | |
|-------------------------------|----------|--|
| EXIST. HANDRAIL | • 29.29 | NEW SPOT ELEVATIONS |
| EXIST. CONCRETE CURB | — 5390 — | NEW CONTOUR (MAJOR) |
| EXIST. CONCRETE/SIDEWALK | — 5386 — | NEW CONTOUR (MINOR) |
| EXIST. WALL OR HEAD WALL | — — | NEW BOUNDARY LINE |
| EXIST. TOP CURB/FLOWLINE | — — | NEW RIGHT-OF-WAY LINE |
| EXIST. SPOT ELEV. | — — | NEW LOT LINE |
| EXIST. GUY WIRE | — — | NEW CENTERLINE |
| EXIST. MONITOR WELL | — — | NEW EASEMENT |
| EXIST. OVERHEAD ELECTRIC | — — | NEW STANDARD CURB & GUTTER |
| EXIST. POWER POLE | — — | NEW MOUNTABLE CURB & GUTTER |
| EXIST. SANITARY SEWER MANHOLE | — — | NEW SIDEWALK |
| EXIST. STORM DRAIN MANHOLE | — — | NEW RETAINING WALL THIS PROJECT |
| EXIST. WATER VALVE | — — | NEW RETAINING WALL DEFERRED TO THE HOME BUILDERS |
| EXIST. WATER METER | — — | |

- LIMITS 100 YEAR FLOOD PLAIN
- LIMITS 500 YEAR FLOOD PLAIN
- LIMITS OF FLOODWAY
- LIMITS AO ZONE
- (13) BLOCK NUMBER INDENTITY



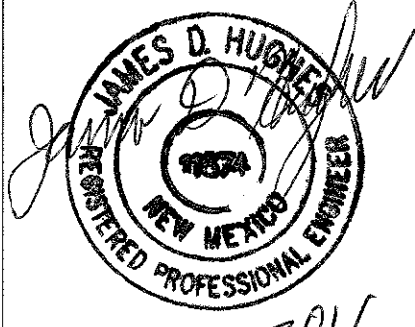
AS BUILT INFORMATION		BENCH MARKS		SURVEY INFORMATION		ENGINEER'S SEAL		REVISIONS		DESIGN	
CONTRACTOR	WORK ORDER NO.	DATE	DATE	DATE	DATE	DATE	DATE	NO.	DATE	DATE	DATE
STATION "5-M22" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE	ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS										
SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE.											
71.9' SE OF POWER POLE #B37 & 106.0' NW OF POWER POLE #B30.											
STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE											
MONUMENT IN THE GROUND. STATION IS STAMPED "5-M22".											
X= 1,584,263.207, Y= 1,475,762.595, (NAD 83), Z= 5597.719 (NAVD 1989).											



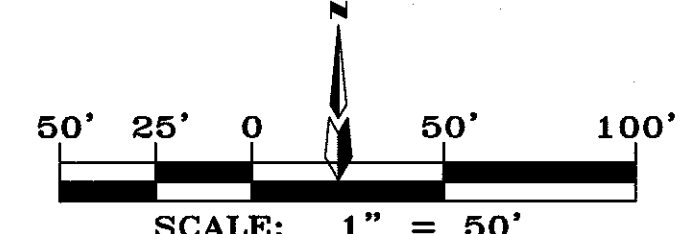
SEE SHEET 1 OF 10

SEE SHEET 3 OF 10

AS BUILT INFORMATION				BENCH MARKS			
CONTRACTOR	WORK	DATE	NO.	DATE	BY	NO.	DATE
STAKED BY	ACCEPTED BY	DATE		STATION	5-M22	IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE	
FIELD RECORD BY	DATE			ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS			
DATE				SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE			
DATE				71.9' SE OF POWER POLE #637 & 186.0' NW OF POWER POLE #60			
DATE				STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE			
DATE				MOVEMENT IN THE GROUND. STATION IS STAMPED "5-M22"			
DATE				X= 1,864,263.207, Y= 1,475,762.595, (NAD 83), Z= 5597.219 (NAVD 1989)			



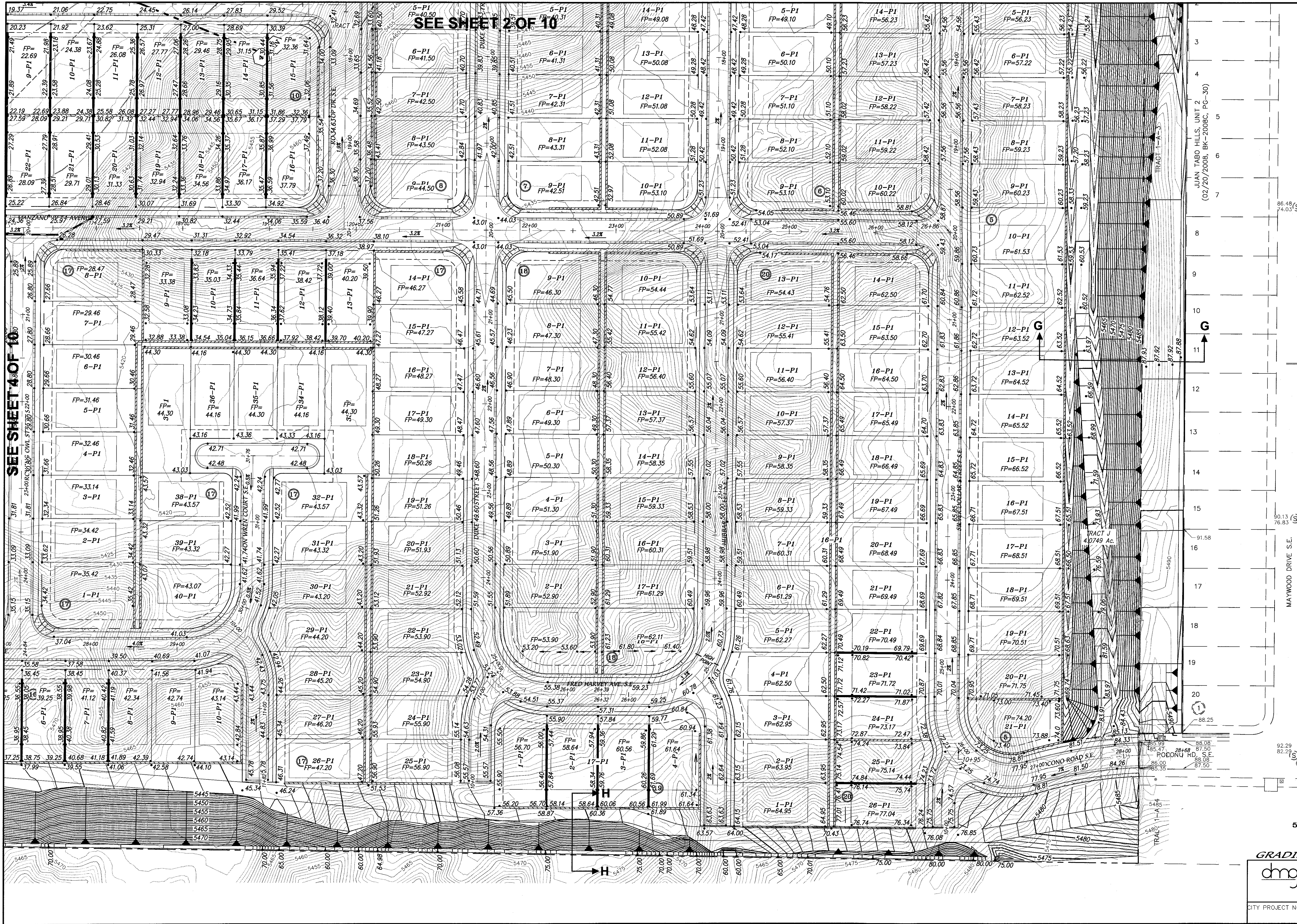
2-22-2016



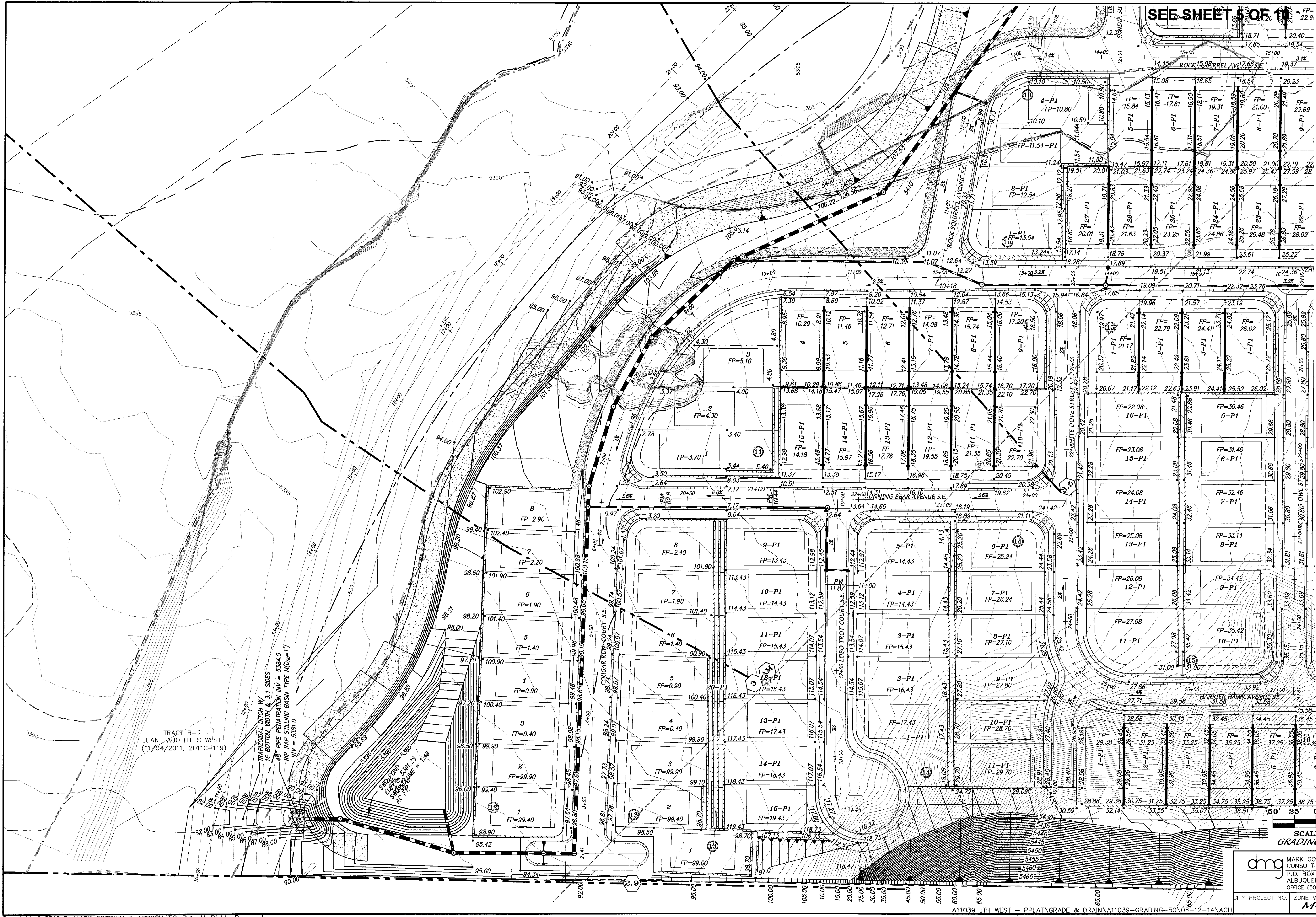
GRADING & DRAINAGE PLAN

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

CITY PROJECT NO. ZONE MAP NO. SHEET OF
M-21-Z 2 10



ENGINEER'S SEAL		SURVEY INFORMATION		BENCH MARKS		AS BUILT INFORMATION	
	JAMES D. HUGHES PROFESSIONAL ENGINEER NEW MEXICO 2-22-2016	NO.	BY	DATE	CONTRACTOR	STATION "5-M2" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS. 77.9' SE OF POWER POLE #3237 & 198.0' NW OF POWER POLE #40. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M2". X=1,564,263.207, Y=1,475,762.595, (NAD 83), Z=5597.219 (NAVD 1989).	DATE
		NO.	BY	DATE	CONTRACTOR	STATION "5-M2" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS. 77.9' SE OF POWER POLE #3237 & 198.0' NW OF POWER POLE #40. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M2". X=1,564,263.207, Y=1,475,762.595, (NAD 83), Z=5597.219 (NAVD 1989).	DATE
		NO.	BY	DATE	CONTRACTOR	STATION "5-M2" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS. 77.9' SE OF POWER POLE #3237 & 198.0' NW OF POWER POLE #40. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M2". X=1,564,263.207, Y=1,475,762.595, (NAD 83), Z=5597.219 (NAVD 1989).	DATE
		NO.	BY	DATE	CONTRACTOR	STATION "5-M2" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS. 77.9' SE OF POWER POLE #3237 & 198.0' NW OF POWER POLE #40. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M2". X=1,564,263.207, Y=1,475,762.595, (NAD 83), Z=5597.219 (NAVD 1989).	DATE
NO.	DATE	REMARKS	REVISIONS	DATE	DESIGNED BY	DATE	CHECKED BY
					JCH	06/14	DMG
					ACH	06/14	



SEE SHEET 10 OF 10

TRACT B-2
JUAN TABO HILLS WEST
(11/04/2011, 2011C-119)

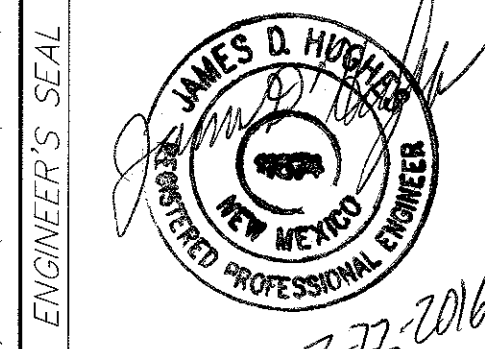
TRIANGULAR DITCH W/ 16" BOTTOM WIDTH & 5:1 SIDES
48" PIPE PENETRATION INV = 5384.0
RIP RAP STILLING BASIN TYPE M(D₅₀=1)
INV = 5381.0

SWAMPY POND 5390.25
ELEVATION 5390.25
AC P.P. = 1.49

SCALE: 1" = 50'
GRADING & DRAINAGE PLAN

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

CITY PROJECT NO. ZONE MAP NO. SHEET OF
M-21-Z 4 10



SURVEY INFORMATION			BENCH MARKS		AS BUILT INFORMATION	
NO.	BY	DATE	FIELD NOTES		CONTRACTOR	DATE
			STATION "5-422" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE, 77.9' SE OF POWER POLE #3537 & 188.0' NW OF POWER POLE #90. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-422"		WORK STAYED BY	DATE
			X= 1,564,263.207, Y= 1,475,762.595, (NAD 83), Z= 5597.219 (NAD 1988).		INSPECTOR'S FIELD VERIFICATION BY	DATE
					DATE CORRECTED BY	DATE
					MICRO-FILM INFORMATION	
					RECORDED BY	DATE
					NO.	

STATION 5+422' IS LOCATED 8.7 M. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE. 77.9' SE OF POWER POLE #537 & 106.0' NW OF POWER POLE #60. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED '5+422'.

X= 1564.963207, Y= 1475.762595, (NAD 83), Z= 5597.219 (NAVD 1989).

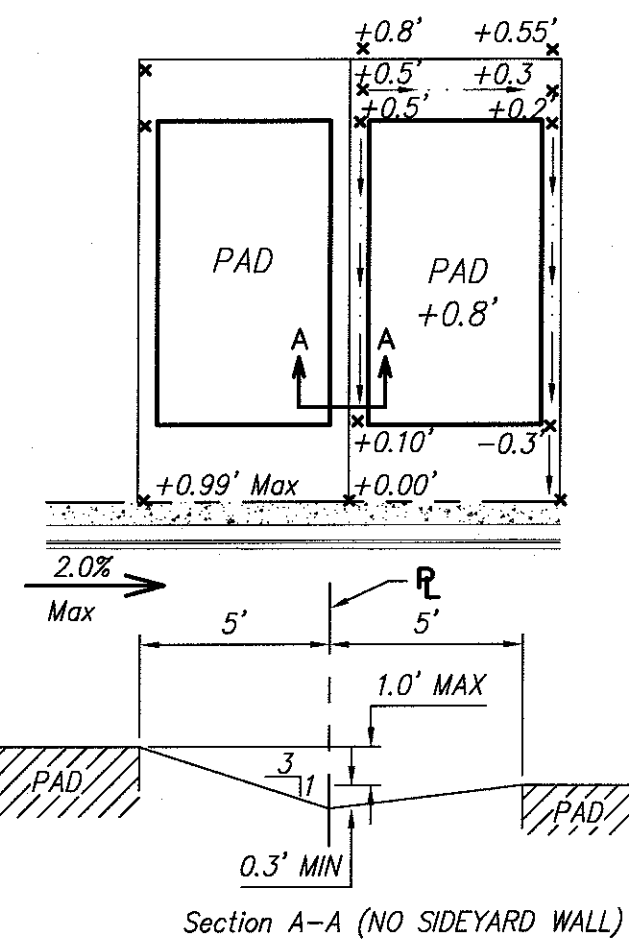
GRADING NOTES:

1. THE CONTRACTOR(S) MUST COMPLY WITH NPDES TEMPORARY CONSTRUCTION REQUIREMENTS AND OBTAIN A PERMIT. CONTRACTOR SHALL ALSO PROVIDE A COPY OF THE APPLICATION FOR PERMIT AND NOTICE OF TERMINATION TO THE OWNER.
2. THE CONTRACTOR(S) IS RESPONSIBLE FOR PREPARING AND MAINTAINING A SWPPP FOR THE DURATION OF INFRASTRUCTURE CONSTRUCTION AND UNTIL THE CITY OF ALBUQUERQUE ACCEPTS THE PUBLIC INFRASTRUCTURE. CONTRACTOR SHALL PROVIDE THE OWNER WITH A COPY OF THE SWPPP AT THE BEGINNING OF THE PROJECT AND AT THE TIME OF NOTICE OF TERMINATION.
3. THE CONTRACTOR(S) IS RESPONSIBLE FOR CONSTRUCTING AND MAINTAINING EROSION CONTROLS FOR THE DURATION OF THE CONSTRUCTION OF THE PUBLIC INFRASTRUCTURE AND FOR THE REMOVAL OF THE EROSION CONTROLS WHERE DIRECTED TO DO SO BY THE OWNER AT THE TIME OF NOTICE OF TERMINATION.
4. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION STAKING AND IS TO PROVIDE AN AS-BUILT SURVEY CERTIFIED BY A REGISTERED PROFESSIONAL SURVEYOR TO THE OWNER UPON COMPLETION OF THE CONSTRUCTION. THE EARTHWORK CONTRACTOR IS TO PROVIDE EARTHWORK SURVEY, AND THE WALL BUILDER IS TO PROVIDE WALL SURVEY.
5. EARTHWORK CONTRACTOR SHALL PREPARE ROUGH SUBGRADE FOR THE RETAINING WALL CONSTRUCTION AND PROVIDE SUFFICIENT BACKFILL MATERIAL STOCKPILED ON THE HIGH SIDE OF EACH WALL FOR THE WALL BUILDER TO COMPLETELY BACKFILL THE WALLS.
6. RETAINING WALLS ARE SHOWN FOR GRADING PURPOSES ONLY. RETAINING WALL DESIGN IS TO BE PERFORMED BY OTHERS, AND SHALL BE SUBMITTED TO THE CITY OF ALBUQUERQUE FOR REVIEW, APPROVAL, PERMIT, AND INSPECTION.
7. EARTHWORK CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL INVESTIGATION BY GEOTEST, INC. DATED JUNE 29, 2012.
8. TOPOGRAPHIC AND BOUNDARY SURVEY ARE BY ALDRICH LAND SURVEYING NOVEMBER 2011.
9. BENCHMARK USED IS AGRS BRASS CAP STAMPED "7-M21" HAVING AN ELEVATION OF 5498.07 (NGVD29).
10. FEMA SPECIAL FLOOD HAZARD ZONE ON THIS PROPERTY AS SHOWN ON LOMR CASE NO. 13-06-1053P EFFECTIVE JUNE 17, 2013.

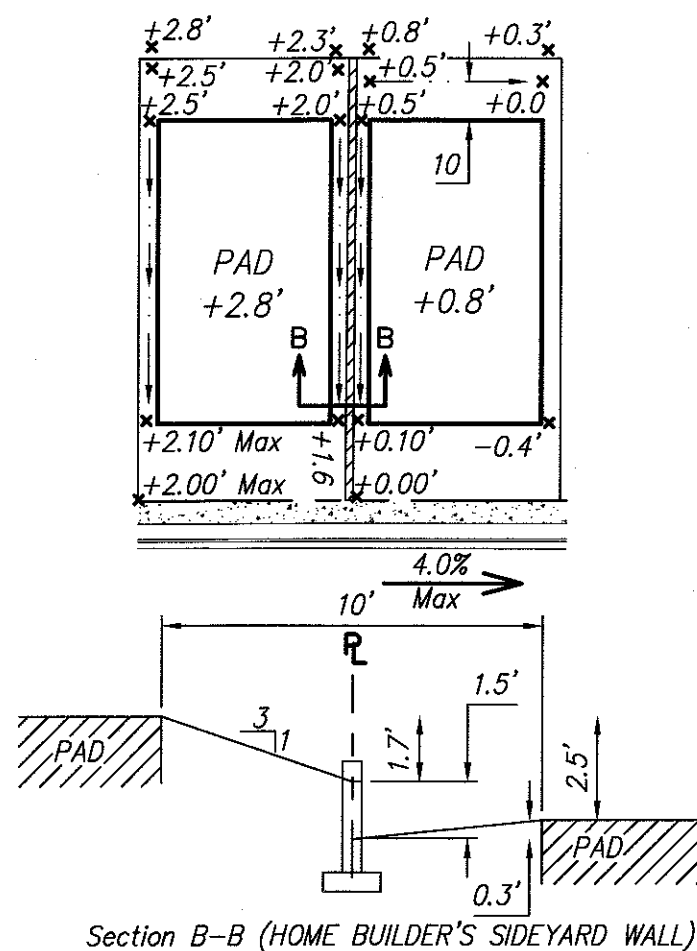
FLOOD PLAIN LEGEND

- LIMITS 100 YEAR FLOOD PLAIN
- LIMITS 500 YEAR FLOOD PLAIN
- LIMITS OF FLOODWAY
- LIMITS AO ZONE

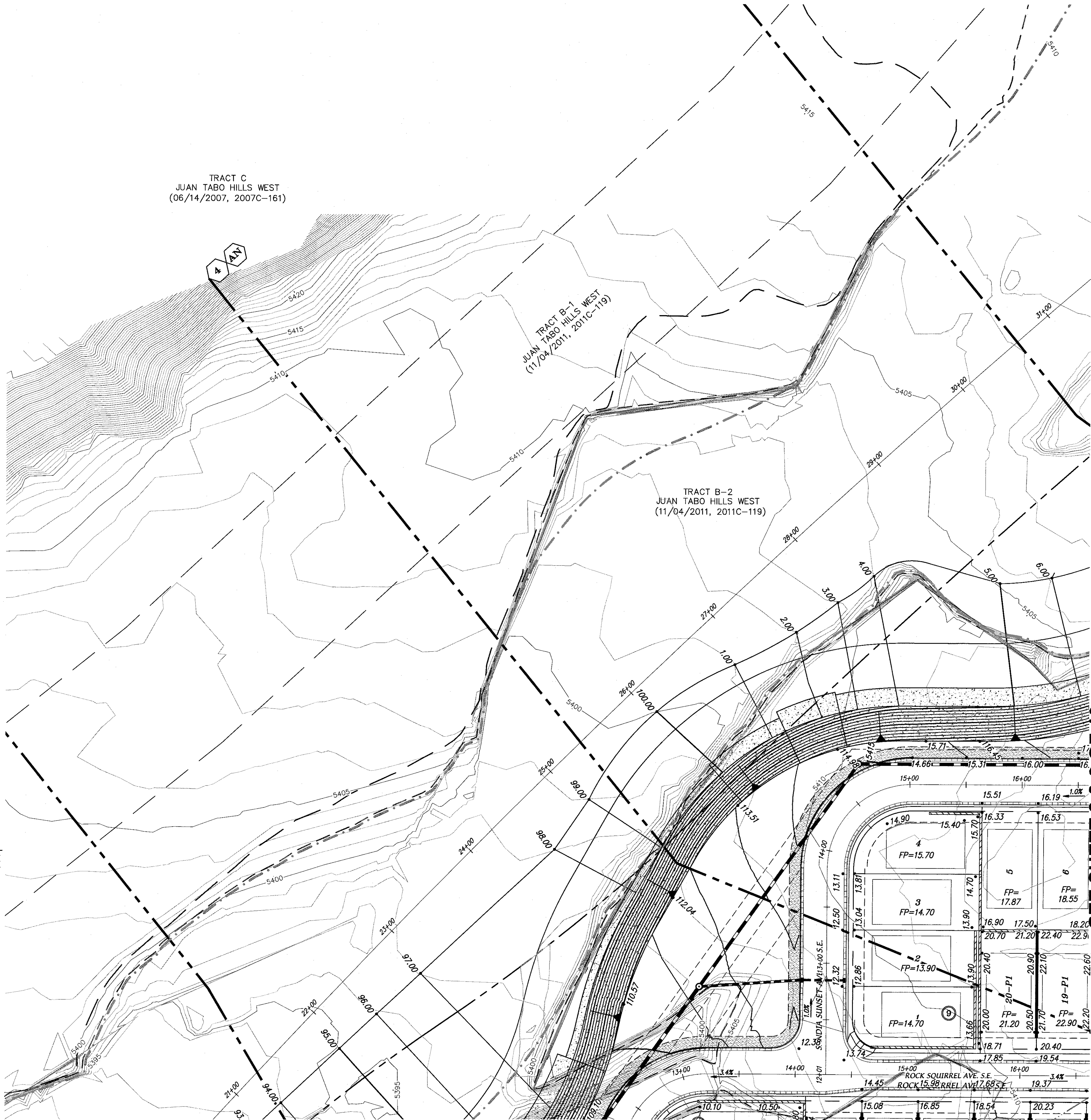
TYPICAL LOT GRADING W/O SIDEYARD WALL



TYPICAL LOT GRADING WITH SIDEYARD WALL

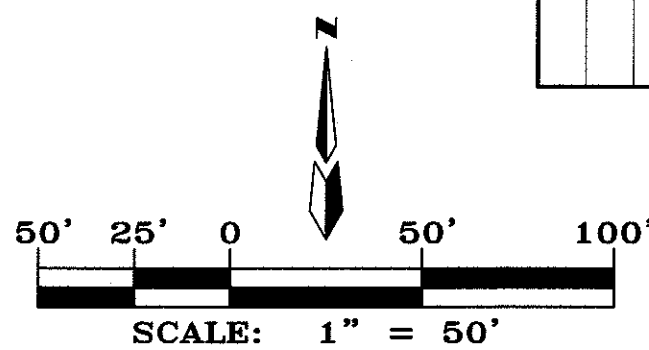


SEE SHEET 6 OF 10



SEE SHEET 4 OF 10

SEE SHEET 2 & 3 OF 10



GRADING & DRAINAGE PLAN

dmg MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
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OFFICE (505) 828-2200, FAX (505) 797-9539

CITY PROJECT NO. ZONE MAP NO. SHEET OF
M-21-Z 5 10

ENGINEER'S SEAL		SURVEY INFORMATION		AS-BUILT INFORMATION	
	REMARKS	NO.	BY	DATE	CONTRACTOR
					WORK
					STAKED BY
					DATE
	REVISIONS	NO.	BY	DATE	STATION "5-M22" IS LOCATED 8.7' M. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE, 77.9' SE OF POWER POLE #537 & 166.0' NW OF POWER POLE #60. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "5-M22". X= 1,564,863.207, Y= 1,475,762.595, (NAD 83), Z= 5507.219 (NAD 1989).
					FIELD
					DATE
					DATE
DESIGNED BY JGH	DATE 06/14				DATE
					DATE
					DATE
					DATE
DRAWN BY ACH	DATE 06/14				DATE
					DATE
					DATE
					DATE
CHECKED BY DMG	DATE 06/14				DATE
					DATE
					DATE
					DATE



Table 1: HYDROLOGY SUMMARY TABLE									
AHYMO BASIN ID	Location	AREA		Ground Cover (%)				Q ₁₀₀ (cfs)	
		(Ac)	(Sq mi)	A	B	C	D	Increment	Sub Total
100	Four Hills	89.10	0.13922	8	18	35	38.7	328.22	1.3218
101	Juan Tabo Hills	66.80	0.10438	0	19	39	42	282.50	1.0755
200	Four Hills	9.00	0.01406	0	20	40	40	37.61	0.1390
201	Kirtland	76.30	0.01828	100	0	0	0	27.94	0.0300
203	Juan Tabo Hills	42.50	0.06541	0	22	45	33	172.59	0.5376
300	Juan Tabo Hills	22.30	0.03484	0	14	29	57	99.75	0.4873
400	JTH Estates	77.70	0.12141	0	9	41	50	343.61	1.4893
TOTALS:		383.70	0.50					1291.92	5.05

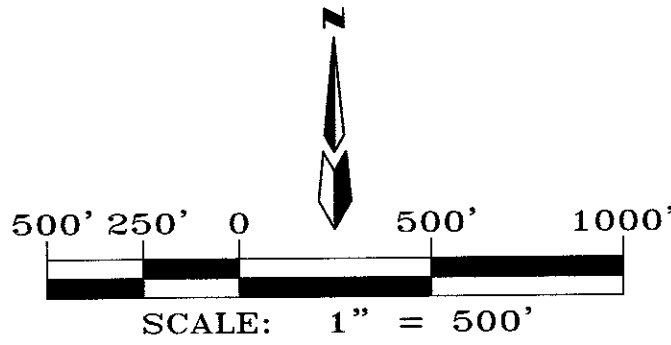
LEGEND

--- AHYMO BASIN BOUNDARY

--- SUB-BASIN BOUNDARY

--- NEW RCP STORM DRAIN

(400) AHYMO BASIN NUMBER



JUAN TABO HILLS ESTATES

DRAINAGE BASIN MAP

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

CITY PROJECT NO. ZONE MAP NO. SHEET OF
M-21-Z 7 10

ENGINEER'S SEAL		SURVEY INFORMATION		BENCH MARKS		AS BUILT INFORMATION	
	NO.	DATE	BY	STATION "S-422" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE, 77.9' SE OF POWER POLE #537 & 186.0' NW OF POWER POLE #60. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "S-422". X= 1,584,263.207, Y= 1,475,762.595, (NAD 83), Z= 5597.219 (NAD 1983).	CONTRACTOR	WORK STARTED BY	DATE
	NO.	DATE	BY	STATION "S-422" IS LOCATED 8.7 MI. SE OF DOWNTOWN ALBUQUERQUE ON THE EAST SIDE OF THE MUNICIPAL LIMITS LINE IN THE FOUR HILLS SUBDIVISION AREA. STATION IS 600 FT. EAST OF MUNICIPAL LIMITS LINE, 77.9' SE OF POWER POLE #537 & 186.0' NW OF POWER POLE #60. STATION IS A STANDARD ACS BRASS DISK SET IN A CONCRETE MONUMENT IN THE GROUND. STATION IS STAMPED "S-422". X= 1,584,263.207, Y= 1,475,762.595, (NAD 83), Z= 5597.219 (NAD 1983).	CONTRACTOR	WORK STARTED BY	DATE
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HYDROLOGY SUMMARY TABLE																	
HYDROLOGY					Street flows					Inlet Calcs			Split Flows				
AHYMO BASIN ID	SUB-BASIN ID	AREA (Ac)	Peak 100-YR Flow Q ₁₀₀ (cfs)		Location	Curb Type	Slope (%)	Depth (ft)	Velocity (fps)	Energy (ft)	Inlet #	Intercepted (cfs)	By-pass (cfs)	Path 1 Downstrm ID	Flow (cfs)	Path 2 Downstrm ID	Flow (cfs)
400		77.70	343.61														
	400AA	3.18	14.05	14.05	Rocky Top	Std. (8")	8.0	0.29	5.5	0.76	-	0.00	14.05	400DD	14.05	-	-
	400BB	2.45	10.82	10.82	trail	n/a	-	-	-	-	-	0.00	10.82	400DD	10.82	-	-
	400CC	1.89	8.35	8.35	Sunset St	Roll (4")	3.6	0.23	3.8	0.45	-	0.00	8.35	400DD	8.35	-	-
	400DD	0.44	1.94	35.16	Sunset St	Std. (8")	1.2	0.53	3.1	0.68	11 & 12	11.80	23.36	400FF	23.36	-	-
	400EE	2.87	12.68	12.68	Sunset St	Std. (8")	1.0	0.33	2.5	0.43	-	0.00	12.68	400FF	12.68	-	-
	400FF	4.13	18.24	30.92	Popejoy	Std. (8")	3.6	0.42	5.2	0.84	-	-	-	-	-	-	-
			54.28		Rocky Top	Std. (8")	1.2	0.60	4.1	0.86	13 & 14	16.00	38.28	400GG	38.28	-	-
	400GG	1.16	5.12	43.40	Rocky Top	Std. (8")	2.1	0.49	4.9	0.86	-	0.00	43.40	400P	43.40	-	-
	400A	1.27	5.61	14.84	Silver Dollar St	Std. (8")	2.0	0.32	3.6	0.52	-	0.00	14.84	400B	14.84	-	-
	400B	2.68	11.84	26.68	Silver Dollar St	Std. (8")	2.0	0.43	4.0	0.68	-	0.00	26.68	400F1	13.34	400C	13.34
	400C	2.78	12.28	25.62	Silver Dollar St	Std. (8")	2.0/Sump	0.43	4.0	0.68	S12 & S13	25.62	0.00	400L1	0.00	-	-
	400D	3.86	17.05	17.05	Eastern Bndry	n/a	-	-	-	-	S11	17.05	0.00	400L1	0.00	-	-
	400L1	0.55	2.43	2.43	Sandia Sunset	Roll (4")	0.5	0.22	1.4	0.25	S22	2.43	0.00	-	-	-	-
	400L2	0.84	3.71	3.71	Sandia Sunset	Roll (4")	2.6	0.23	3.1	0.38	-	0.00	3.71	400L3	3.71	-	-
	400L3	0.82	3.62	7.33	Sandia Sunset	Roll (4")	3.4	0.28	4.1	0.54	-	0.00	7.33	400N	3.67	400J	3.67
	400E	2.89	12.77	12.77	Hubbard	Roll (4")	2.0	0.30	3.4	0.48	-	0.00	12.77	400F2	12.77	-	-
	400F1	0.45	1.99	15.33	Manzano Vista	Std. (8")	3.2	0.34	4.2	0.61	-	0.00	15.33	400F2	7.68	400I	7.68
	400F2	0.46	2.03	22.46	Manzano Vista	Std. (8")	3.2	0.39	4.3	0.68	-	0.00	22.46	400F3	11.23	400J	11.23
	400F3	0.26	1.15	35.22	Manzano Vista	Std. (8")	3.2	0.44	4.2	0.71	-	0.00	35.22	400K1	17.61	400T	17.61
	400G	3.31	14.62	14.62	Duke City	Roll (4")	2.0	0.33	3.4	0.51	-	0.00	14.62	400H	14.62	-	-
	400H	1.86	8.22	22.84	Duke City	Std. (8")	2.0	0.42	3.9	0.66	-	0.00	22.84	400F3	22.84	-	-
	400I	2.79	12.32	19.99	Hubbard	Std. (8")	2.0/Sump	0.40	3.8	0.62	S14 & S15	19.99	0.00	400L1	0.00	-	-
	400J	2.79	12.32	27.22	Duke City	Std. (8")	4.0	0.46	4.0	0.71	S16 & S17	27.22	0.00	-	-	-	-
	400K1	0.41	1.81	19.42	Rocky Top	Std. (8")	1.9	0.41	3.7	0.62	-	0.00	19.42	400K2	9.71	400AG	9.71
	400K2	0.41	1.81	11.52	Rocky Top	Std. (8")	1.9	0.35	3.1	0.50	-	0.00	11.52	400P	5.76	400AJ	5.76
	400M	2.13	9.41	9.41	Duke City	Roll (4")	0.5	0.33	1.8	0.38	-	0.00	9.41	400N	9.41	-	-
	400N	1.07	4.73	17.80	Duke City	Std. (8")	0.5	0.44	2.0	0.50	S18 & S19	17.80	0.00	-	-	-	-
	400P	0.70	3.09	52.26	Rocky Top	Std. (8")	Sump	-	-	-	S1 & S2	52.26	0.00	-	-	-	-
	400Q	1.93	8.53	8.53	Canyon Wren Ct	Roll (4")	0.5	0.33	1.8	0.38	-	0.00	8.53	400R	8.53	-	-
	400R	2.08	9.19	17.71	Harrier Hawk	Std. (8")	4.0	0.36	4.7	0.70	-	0.00	17.71	400S	8.86	400V	8.86
	400S	2.17	9.59	18.44	Burrowing Owl	Roll (4")	2.0	0.35	3.6	0.55	-	0.00	18.44	400U	18.44	-	-
	400T	1.90	8.39	26.00	Manzano Vista	Std. (8")	3.2	0.41	4.6	0.74	15 & 16	11.80	14.20	400U	14.20	-	-
	400U	1.60	7.07	39.71	Manzano Vista	Std. (8")	3.2	0.47	5.5	0.94	17 & 18	14.20	25.51	400X	25.51	-	-
	400V	3.71	16.39	25.24	White Dove	Std. (8")	2.0	0.43	4.0	0.68	-	0.00	25.24	400AC	12.62	400W	12.62
	400W	0.78	3.45	16.07	White Dove	Std. (8")	2.0	0.38	3.5	0.57	-	0.00	16.07	400X	16.07	-	-
	400X	0.29	1.28	42.86	Manzano Vista	Std. (8")	3.1	0.47	5.7	0.97	-	0.00	42.86	400Z	21.43	400Y	21.43
	400Y	0.93	4.11	25.54	Rock Squirrel	Std. (8")	2.0	0.43	4.0	0.68	-	0.00	25.54	400AH	25.54	-	-
	400Z	1.54	6.80	28.23	Manzano 40' FF	Std. (8")	1.0	0.42	4.1	0.68	-	0.00	28.23	400AF	28.23	-	-
	400AB	2.98	13.16	13.16	Lobo Trot	Roll (4")	1.0	0.33	2.5	0.43	S7 & S8	13.16	0.00	-	-	-	-
	400AC	1.43	6.32	18.94	Running Bear	Std. (8")	6.0	0.31	5.5	0.78	-	0.00	18.94	400AD	18.94	-	-
	400AD	2.64	11.66	58.83	Cougar Run 40' FF	Std. (8")	1.0	0.61	4.0	0.86	S23 & S24	58.83	0.00	-	-	-	-
	400AG	2.83	12.50	22.21	Rock Squirrel	Std. (8")	3.4	0.38	4.6	0.71	-	0.00	22.21	400AI	11.10	400AH	11.10
	400AH	0.24	1.06	37.70	Rock Squirrel	Std. (8")	Sump	-	-	-	S5 & S6	37.70	0.00	-	-	-	-
	400AI	0.34	1.50	12.61	Sandia Sunset	Std. (8")	1.0	0.38	2.5	0.48	-	0.00	12.61	400AJ	12.61	-	-
	400AJ	1.95	8.61	26.98	Sandia Sunset	Std. (8")	1.4	0.52	4.4	0.82	S3 & S4	26.98	0.00	-	-	-	-
		77.70	343.61									352.84					

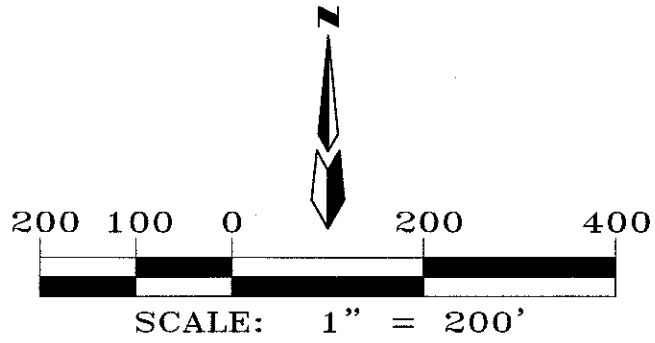
LEGEND

- AHYMO BASIN BOUNDARY
- - - SUB-BASIN BOUNDARY
- NEW RCP STORM DRAIN
- 400 AHYMO BASIN NUMBER
- 400Q SUB-BASIN NUMBER
- 15 NEW INLET NUMBER
- 51 EXISTING INLET NUMBER
- 16 NEW RCP PIPE NUMBER
- 4 HIGH POINT (WATERBLOCK)

Storm Drain System Design

STREET NAME	INLET #	Q (cfs)	PIPE #	SLOPE %	Q ₁₀₀ (cfs)	PIPE CAPACITY	PIPE DIA (IN)	AREA OF PIPE	VELOCITY (ft/sec)
Gallant Fox	S20	12.44	P1	2.12	848.57	930.11	84	38.48	22.05
Blue Ribbon	S21	12.45	P2	15.00	24.89	87.61	24	3.14	7.92
Tract J	S11	17.05	P3	1.00	41.94	66.69	36	7.07	5.93
Sandia Sunset	S12	12.81	P4	2.00	890.51	903.40	84	38.48	23.14
Silver Dollar	S13	12.81	P5	2.00	12.81	14.85	18	1.77	7.25
Sandia Sunset	S14	10.00	P6	2.00	25.62	31.99	18	1.77	14.50
Hubbard	S15	9.99	P7	2.20	918.13	947.49	84	38.48	23.81
Hubbard	S16	13.61	P8	2.00	10.00	14.85	18	1.77	5.66
Sandia Sunset	S17	13.61	P9	2.00	19.99	31.99	18	1.77	11.31
Duke City	S18	8.90	P10	7.00	936.12	1090.11	84	38.48	24.32
Duke City	S19	8.90	P11	1.50	12.22	12.86	18	1.77	6.82
Duke City	S20	8.90	P12	1.20	24.44	24.78	24	3.14	7.78
Duke City	S21	8.90	P13	1.00	8.90	10.50	18	1.77	5.04
Duke City	S22	8.90	P14	1.00	17.80	22.62	24	3.14	5.87
Sandia Sunset	S23	6.60	P15	4.00	978.38	1277.60	84	38.48	25.42
Rocky Top	S24	5.90	P16	1.50	5.90	12.86	18	1.77	3.34
Rocky Top	S25	5.90	P17	2.00	11.80	14.85	24	3.14	3.76
Rocky Top	S26	8.00	P18	2.00	8.00	14.85	18	1.77	4.53
Rocky Top	S27	8.00	P19	1.50	27.80	27.70	24	3.14	8.85
Rocky Top	S28	26.13	P20	1.50	26.13	27.70	24	3.14	8.32
Rocky Top	S29	26.13	P21	0.50	80.06	101.54	48	12.57	6.37
Sandia Sunset	S30	6.60	P22	1.50	1023.05	1119.91	96	50.27	20.35
Sandia Sunset	S31	13.49	P23	1.00	13.49	22.62	24	3.14	4.29
Sandia Sunset	S32	13.49	P24	1.00	26.98	22.62	24	3.14	8.59
Sandia Sunset	S33	1.00	P25	1.00	62.35	66.69	36	7.07	8.82
Rock Squirrel	S34	18.85	P26	2.00	19.02	31.99	24	3.14	6.05
Rock Squirrel	S35	18.85	P27	1.00	100.22	100.60	42	9.62	10.42
Rock Squirrel	S36	18.85	P28	1.00	100.22	100.60	42	9.62	10.42
Manzano Vista	S37	5.90	P29	2.00	5.90	14.85	18	1.77	3.34
Manzano Vista	S38	5.90	P30	3.14	11.80	18.61	18	1.77	6.88
Manzano Vista	S39	7.10	P31	2.00	7.10	14.85	18	1.77	4.02
Manzano Vista	S40	7.10	P32	3.14	26.00	40.08	24	3.14	8.28
Manzano Vista	S41	1.00	P33	1.00	126.22	143.60	48	12.57	10.04
Lobo Trot	S42	6.58	P34	1.00	6.58	10.50	18	1.77	3.72
Lobo Trot	S43	6.58	P35	1.00	13.16	22.62	24	3.14	4.19
Manzano Vista	S44	1.00	P36	1.00	139.38	143.60	48	12.57	11.09
Cougar Run St	S45	58.83	P37	1.10	198.21	206.30	54	15.90	12.46
48 RCP into Arroyo	S46	1.00	P38	1.00	139.94	143.60	48	12.57	11.14
SWQ @ 48" RCP	S47	1.00	P39	1.00	58.27	66.69	36	7.07	8.24
SWQ @ 96" RCP	S48	1.00	P40	1.00	35.37	410.10	30	4.91	7.21

TIJERAS ARROYO

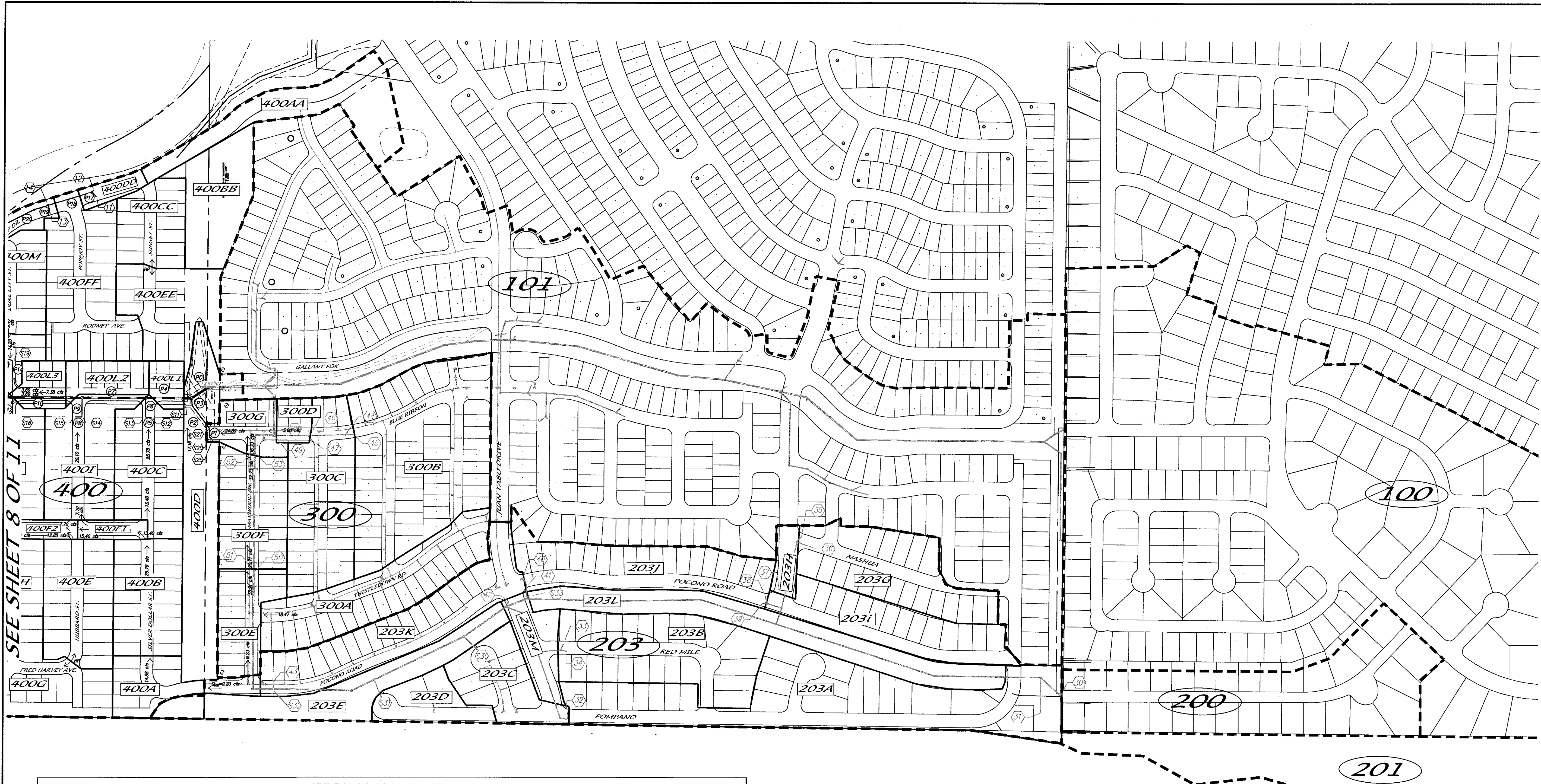


SEE SHEET 9 OF 11

JUAN TABO HILLS ESTATES
ONSITE DRAINAGE BASIN MAP

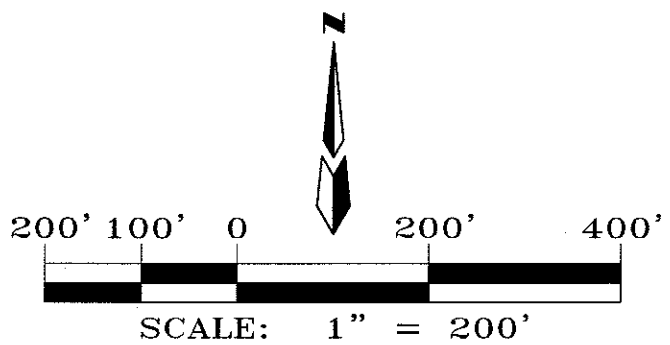
MARK GOODWIN & ASSOCIATES, P.A.
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CITY PROJECT NO. ZONE MAP NO. SHEET OF
M-21-Z 8 10



HYDROLOGY SUMMARY TABLE																					
HYDROLOGY										Street flows				Inlet Calcs				Split Flows			
AHYMO BASIN ID	SUB-BASIN ID	AREA (Ac)	(Sq mi)	Ground Cover (%)			Peak 100-YR Flow Q ₁₀₀ (cfs)		Location	Slope (%)	Depth (ft)	Velocity (fps)	Energy (ft)	Inlet ID #	Intercepted (cfs)	By-pass (cfs)	Path 1		Path 2		
				A	B	C	Incremental	Surface										Dow nstrm ID	Flow (cfs)	Dow nstrm ID	Flow (cfs)
100				8	18	35	39	328.22													
	100.1	ROUTED in 54" pipe							327.86												
	101	66.80	0.10438	0	19	39	42	282.50	0.00												
	200	9.00	0.01405	0	20	40	40	37.61	0.00						30	37.61	0.00				
	201	76.30	0.01828	100	0	0	0	27.84	11.64						31	16.00	11.64	203A	11.64	PIPE	16.00
	203	42.50	0.06641	0	22	45	33	172.59													
	203A	8.73						35.45	47.09	Pompano PI SE	2.13	0.51	5.1	0.9	32	16.00	31.09	203M	15.54	203C	15.54
	203B	5.05						20.50	20.50	Red Mile	3.00	0.38	4.3	0.7	33 & 34	11.80	17.10	203M	17.10	-	-
	203C	2.19						8.89	16.66	Retama Ct	2.00	0.49	sump	sump	S30	16.66	0.00	-	-	-	-
	203D	1.40						5.90	13.67	Pompano PI	4.00	0.40	sump	sump	S31	13.67	0.00	-	-	-	-
	203E	3.33						13.51	0.00	trail	-	-	sump	sump	S32	13.51	0.00	-	-	-	-
	203G	3.95						16.00	16.00	Nashua	3.00	0.36	4.0	0.6	35 & 36	9.80	6.20	203H	16.20	-	-
	203H	0.50						2.03	8.26	Timonium	1.40	0.40	3.0	0.5	37	5.10	3.16	203J	3.16	-	-
	203I	3.30						13.50	16.66	Pocono	2.00	0.39	3.5	0.6	38 & 39	13.60	3.06	203J	3.06	-	-
	203J	4.04						16.40	19.46	Pocono	4.00	0.36	4.5	0.7	40 & 41	14.00	5.46	203K	5.46	-	-
	203L	4.00						16.25	20.18	trail	-	-	sump	sump	S33	16.25	0.00	-	-	-	-
	203M	1.25						5.07	22.10	Juan Tabo Drive	1.00	0.58	4.0	0.8	42	9.80	12.30	203K	12.30	-	-
	203K	4.40						17.90	35.66	Pocono	1.00	0.46	3.2	0.6	43	17.20	18.46	300E	9.23	400A	9.23
	300	22.30	0.03484	0	14	29	57	99.75													
	300A	4.13						18.47	18.47	Thistedown Rd	3.00	3.50	4.0	3.7		0.00	17.47	300E	18.47	-	-
	300B	8.00						35.78	35.78	Blue Ribbon Rd	2.00	0.49	4.6	0.8	44 & 45	18.00	17.78	300C	17.78	-	-
	300C	3.96						17.70	35.50	Pleasanton Dr	1.88	0.49	4.5	0.8	46 & 47	18.00	17.50	300D	17.50	-	-
	300D	0.52						2.33	19.80	Blue Ribbon Rd	3.43	0.38	4.5	0.7	48 & 49	16.80	3.00	300G	3.00	-	-
	300E	1.84						8.21	35.91	Maywood Dr	1.00	0.51	3.7	0.7	50 & 51	15.20	20.71	300F	20.71	-	-
	300F	2.69						12.02	32.73	Maywood Dr	1.00	0.50	3.7	0.7	52 & 53	16.00	16.73	300G	16.73	-	-
	300G	1.15						5.16	24.89	Out To Basin 400	-	-	-	-		0.00	24.89	400.00	24.89	-	-

- LEGEND
- AHYMO BASIN BOUNDARY
 - SUB-BASIN BOUNDARY
 - NEW RCP STORM DRAIN
 - AHYMO BASIN NUMBER
 - SUB-BASIN NUMBER
 - NEW INLET NUMBER
 - EXISTING INLET NUMBER
 - NEW RCP PIPE NUMBER
 - HIGH POINT (WATERBLOCK)

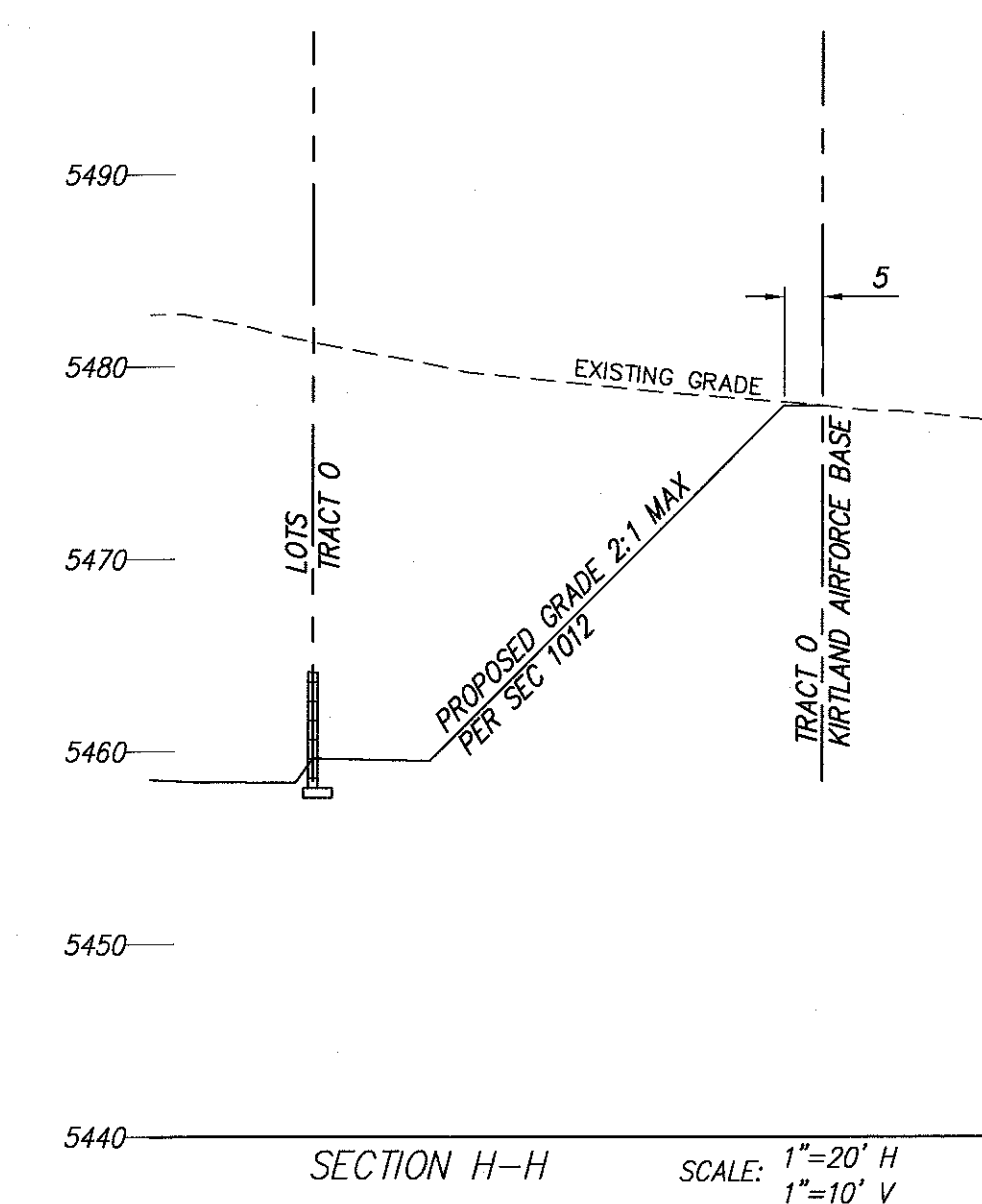
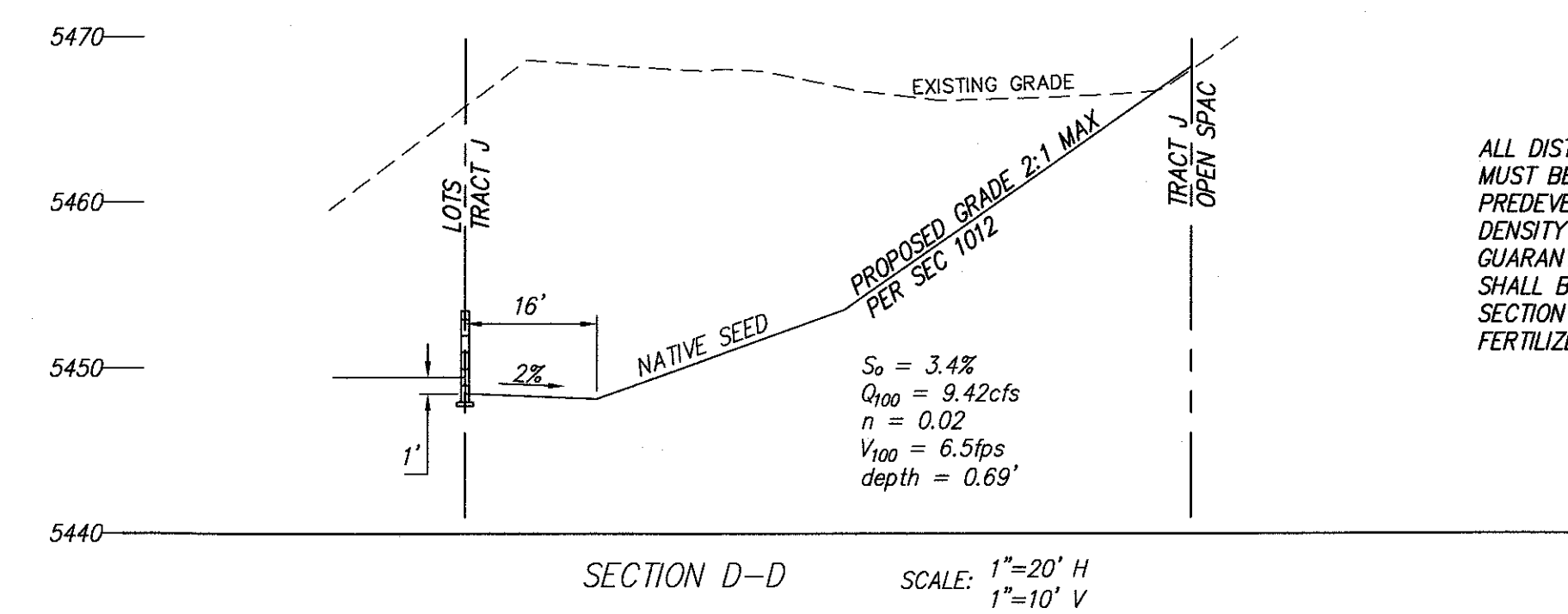
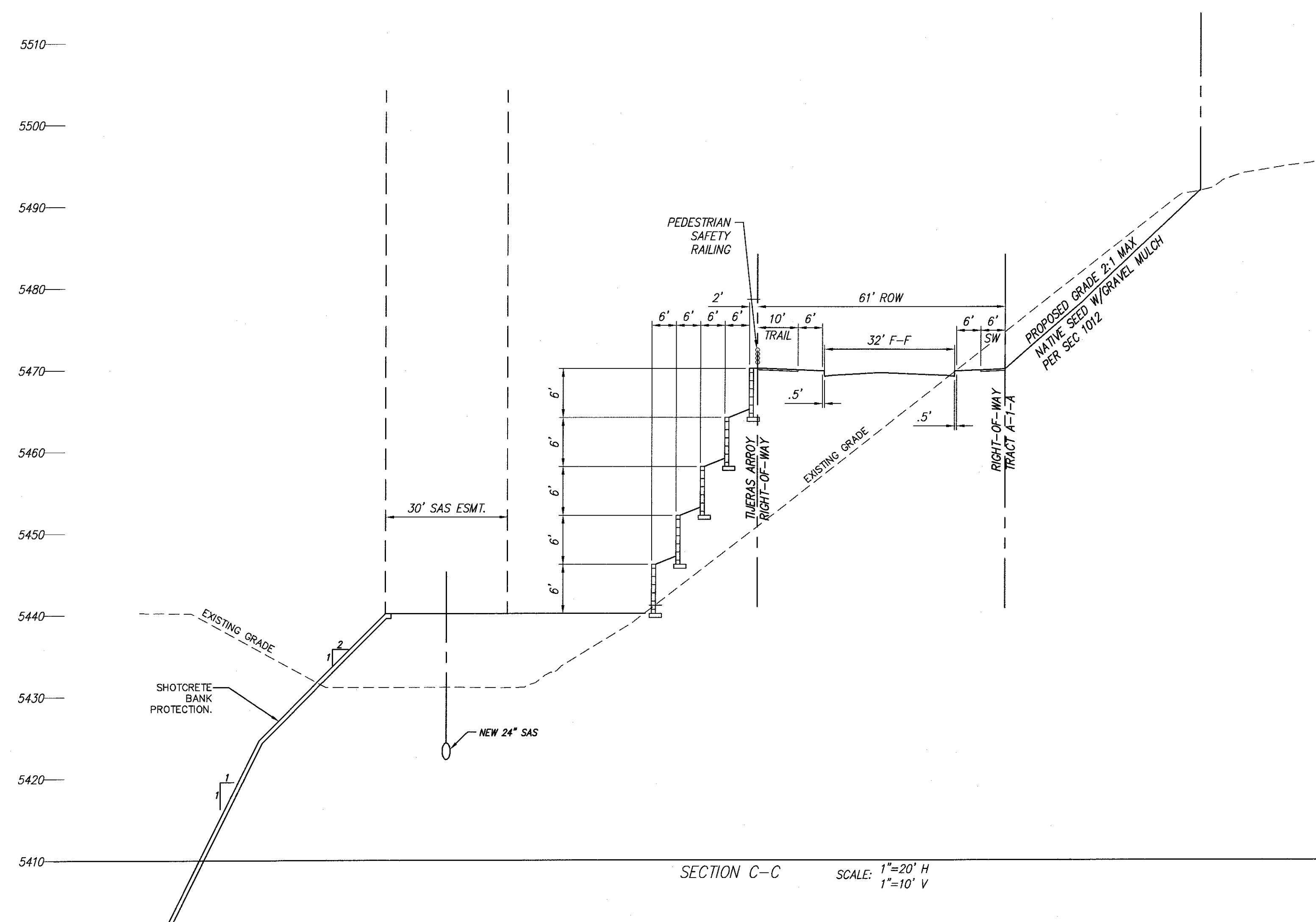
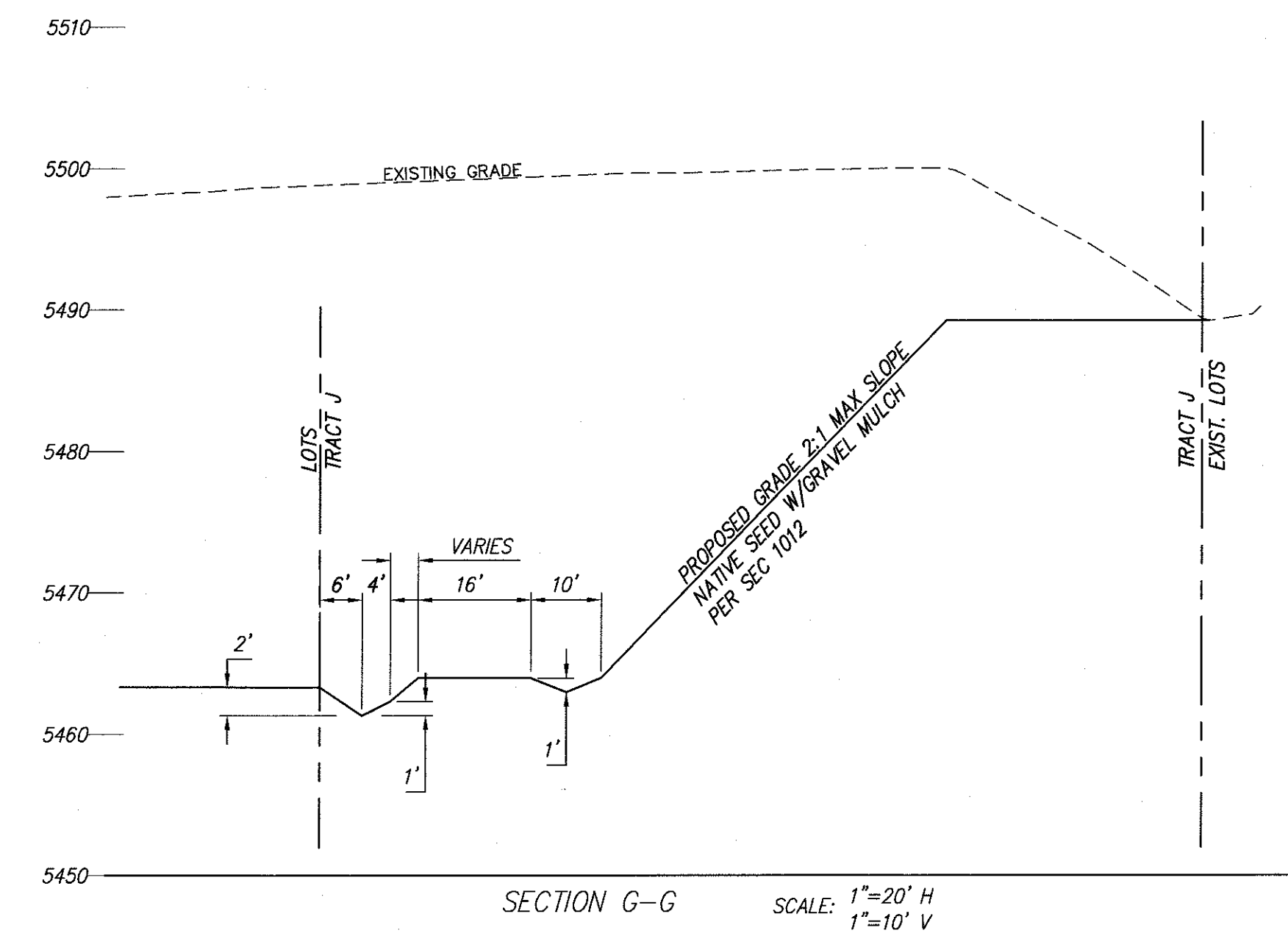
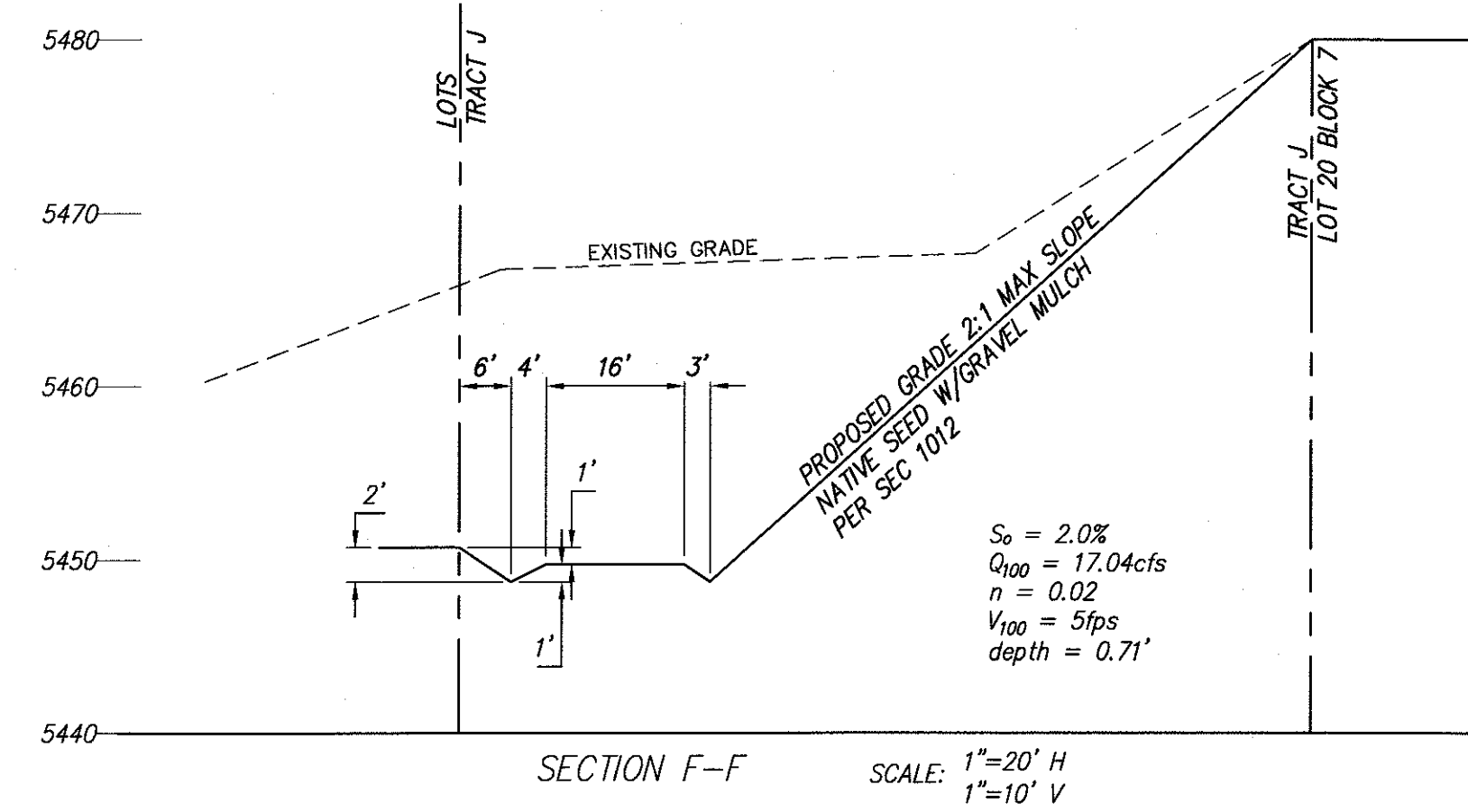
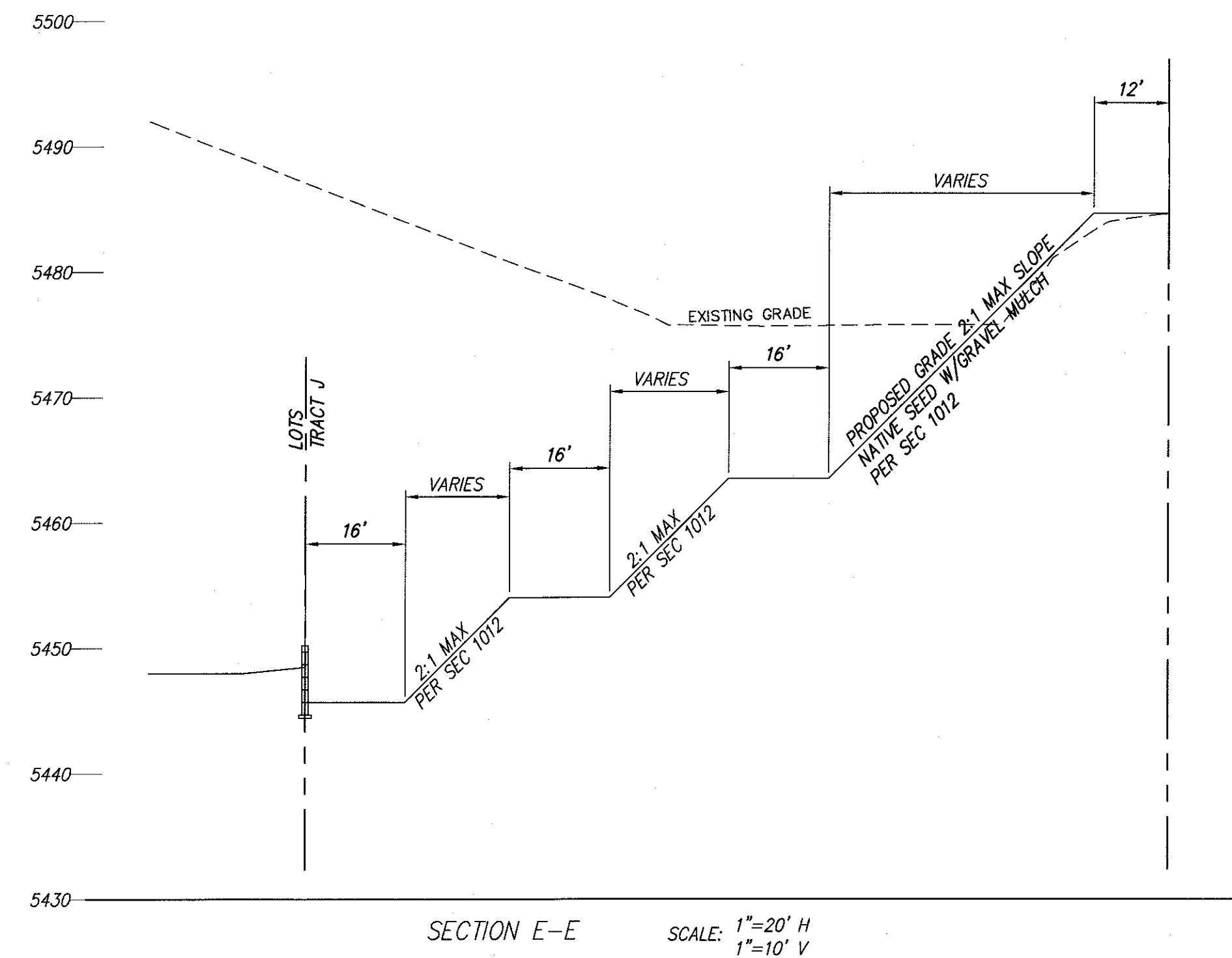


JUAN TABO HILLS ESTATES
OFF-SITE DRAINAGE SUB-BASINS 1

dmg MARK GOODWIN & ASSOCIATES, P.A.
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CITY PROJECT NO. ZONE MAP NO. SHEET OF
M-21-Z 9 10

ENGINEER'S SEAL		SURVEY INFORMATION		BENCH MARKS		AS BUILT INFORMATION					
	NO. DATE	REMARKS	BY	DATE	NO.	DATE	NO.				
DESIGNED BY		DATE		DATE		DATE					
DRAWN BY		DATE		DATE		DATE					
CHECKED BY		DATE		DATE		DATE					



ALL DISTURBED AREA IN TRACT J AND O
MUST BE REVEGETATED TO 70% OF
PREDEVELOPMENT GROUND COVER
DENSITY PRIOR TO RELEASE OF FINANCIAL
GUARANTEES, NATIVE SEED AND MULCH
SHALL BE APPLIED IN ACCORDANCE WITH
SECTION 1012 AND WILL INCLUDE
FERTILIZER AND SUPPLEMENTAL WATER.

[illegible]

JUAN TABO HILLS ESTATES

GRADING & DRAINAGE PLAN

dmg MARK GOODWIN & ASSOCIATES, P.A.
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P.O. BOX 90606
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CITY PROJECT NO.	ZONE MAP NO.	SHEET OF
	<i>M-21-Z</i>	<i>10 10</i>