CITY OF ALBUQUERQUE

Richard J. Berry, Mayor

April 27, 2017

J. Graeme Means, P.E.
High Mesa Consulting Group
6010 B Midway Park Blvd NE
Albuquerque, NM, 87109

RE: **Camino Encantado Construction**
924 Menaul Blvd NE
Grading and Drainage Plan
Engineer's Stamp Date 4/24/2017 (File: H15D016)

Dear Mr. Means:

Based on the information provided in your submittal received 4/24/17, the Grading and Drainage Plan is compliant with the approved Conceptual Grading and Drainage Plan (9/1/15) and is approved for Grading, Paving, and Building Permit.

If you have any questions, please contact me at 924-3695 or dpeterson@cabq.gov.

Sincerely,

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

Orig: Drainage file

PO Box 1293
Albuquerque
NM 87103
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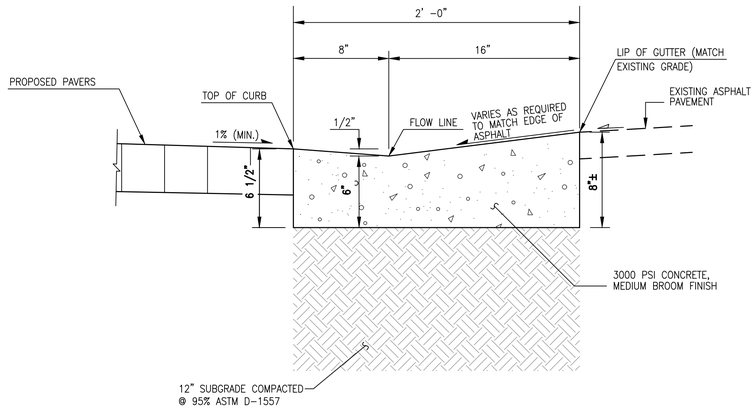


TYPICAL CURB & GUTTER (24" ADA) SECTION

SCALE: 1" = 0'-6"

SCALE: 1" = 10'

10 0 20

5 10

CONSTRUCTION NOTES

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM, 811, FOR DESIGNATION (LINE-SPOTTING) OF EXISTING UTILITIES.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERPRETATIONS IT MAKES WITHOUT FIRST CONTACTING THE ENGINEER AS REQUIRED ABOVE.
3. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
4. ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.
5. UTILITY INFORMATION SHOWN HEREON HEREON IS BASED UPON ONSITE SURFACE EVIDENCE. UTILITY LINES SHOWN ON THIS DRAWING ARE SHOWN IN AN APPROXIMATE MANNER ONLY AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE SURVEYOR HAS CONDUCTED ONLY PRELIMINARY INVESTIGATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THIS INVESTIGATION IS NOT CONCLUSIVE, AND MAY NOT BE COMPLETE, THEREFORE, MAKES NO REPRESENTATION PERTAINING THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE PROPERTY OWNER, DEVELOPER, OR CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE PROPERTY OWNER, DEVELOPER, OR 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. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.
6. THE DESIGN OF PLANTERS AND LANDSCAPED AREAS IS NOT PART OF THIS PLAN. ALL PLANTERS AND LANDSCAPED AREAS ADJACENT TO THE BUILDING(S) SHALL BE PROVIDED WITH POSITIVE DRAINAGE TO AVOID ANY PONDING ADJACENT TO THE STRUCTURE. FOR CONSTRUCTION DETAILS, REFER TO LANDSCAPING PLAN.
7. THE GRADES INDICATED ON THIS PLAN ARE FINISHED GRADES UNLESS OTHERWISE INDICATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LEAVING SUBGRADE AT ELEVATIONS THAT SHALL ACCOMMODATE PROPOSED IMPROVEMENTS AS INDICATED ON THE PLANS INCLUDING, BUT NOT LIMITED TO, SURFACE DRAINAGE STRUCTURES, PAVING AND LANDSCAPING SURFACING.

CONTROL SURVEY NOTE

A CONTROL SURVEY WAS CONDUCTED AT THE SITE ON AUGUST 29, 2014 AND VERIFIED ON JANUARY 27, 2017. THE VERTICAL ELEVATION OF OF AGRS CONTROL STATION "11-H15" WAS USED FOR THE PROJECT CONTROL BENCHMARK. CONTROL WAS PROJECTED ONTO THE SUBJECT SITE UTILIZING RTK GPS OBSERVATIONS COMBINED WITH GEOID COAJUL08 TO ESTABLISH HORIZONTAL POSITIONS BASED UPON NAD 83/NAVD 88 DATUM. THE RTK OBSERVATIONS WERE USED TO ESTABLISH THE TEMPORARY BENCHMARKS AT THE PROJECT SITE. THE POINTS OBSERVED HAVE BEEN QUALITY CONTROLLED FOR RELATIVE ACCURACY. AN AGRS CONTROL STATION AND A SEPARATE HORIZONTAL CONTROL STATION IN THE VICINITY OF THE PROJECT WERE OBSERVED IN ORDER TO PROVIDE REFERENCE TIES TO THE SITE. THE AGRS GRID CONTROL STATION COORDINATES HELD WERE FOR "A-438".

BENCHMARKS

PROJECT BENCHMARK

AN A.G.R.S. 1 3/4" ALUMINIUM DISK STAMPED "ACS BM, 11-H15" EPOXIED ON TOP OF CONCRETE CURB RETURN, AT THE ENE QUADRANT OF THE INTERSECTION OF MENAUL BOULEVARD AND BROADBENT PARKWAY N.E.
ELEVATION = 5015.50 FEET (NAVD 1988)

TEMPORARY BENCHMARK #1 (T.B.M.)

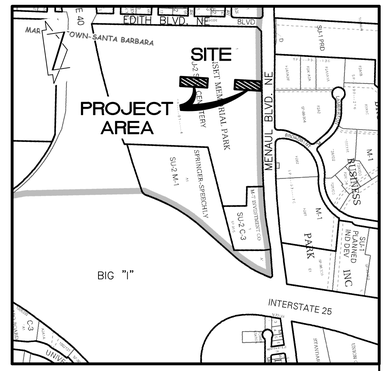
A MAG NAIL W/WASHER SET IN ASPHALT, AS SHOWN ON THIS SHEET.
ELEVATION = 5008.79 FEET (NAVD 1988)

TEMPORARY BENCHMARK #2 (T.B.M.)

A MAG NAIL W/WASHER SET IN ASPHALT, AS SHOWN ON SHEET C1.1.
ELEVATION = 5002.64 FEET (NAVD 1988)

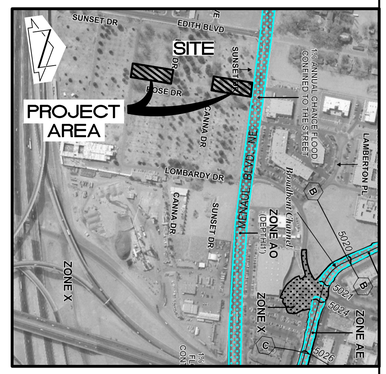
LEGEND

EXISTING	
BP	BRICK PAVERS
C&G	CURB AND GUTTER
CGW	CONCRETE/GRANITE WALL
CONC	CONCRETE
EA	EDGE OF ASPHALT
EO	ELECTRIC OUTLET
EPB	ELECTRIC PULLBOX
FL	FLOWLINE
HS	GRAVE MARKER HEADSTONE
IVB	IRRIGATION VALVE BOX
LSD	LANDSCAPING DIVIDER
KSW	KEYSTONE BLOCK WALL
PB	CONCRETE WHEEL STOP
PLT	PLANTER
ROLL	ROLL CURB
RR	LANDSCAPING RIVER ROCK
SB	STONE BENCH/HEADSTONE
TA	TOP OF ASPHALT
TB	TOP OF BENCH
TC	TOP OF CURB
TCO	TOP OF CONCRETE
TW	TOP OF WALL
WFT	STONE FOUNTAIN
▭	CEMETERY HEADSTONE
✳	CEMETERY PLOT MARKER
PROPOSED	
FG	FINISHED GRADE (LANDSCAPE AREA)
INV	INVERT
TA	TOP OF ASPHALT PAVEMENT
TC	TOP OF CURB
TCO	TOP OF CONCRETE/PAVER
TG	TOP OF GRATE
+ 20.05	EXISTING SPOT ELEVATION
◆ 14.00	PROPOSED SPOT ELEVATION
	EXISTING FLOWLINE
	PROPOSED FLOWLINE
-4920-	EXISTING CONTOUR
20	PROPOSED CONTOUR
	EXISTING DIRECTION OF FLOW
	PROPOSED DIRECTION OF FLOW
	RIGHT OF WAY LINE
	PUBLIC EASEMENT LINE
	HIGH POINT / DIVIDE
	PROPOSED BRICK PAVERS
	PROPOSED LANDSCAPE AREA



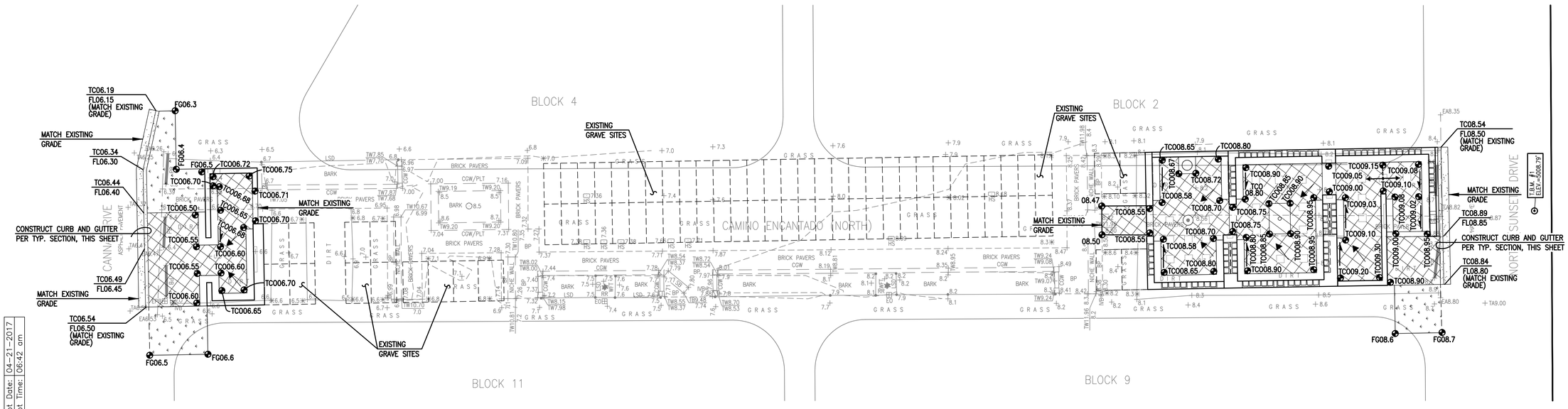
VICINITY MAP
SCALE: 1" = 750'

H-15



F.I.R.M.
SCALE: 1" = 500'

332 of 825
SEPT. 26, 2008



NOTE:
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File Name: 170024_C1.0.DWG | Plot Time: 06:42 am

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CAMINO ENCANTADO
SUNSET MEMORIAL PARK, ALBUQUERQUE, NEW MEXICO
PHASE II CONSTRUCTION DOCUMENTS

J. GRAEME MEANS
NEW MEXICO
13676
REGISTERED PROFESSIONAL ENGINEER

04-24-2017

DRAWN BY: SCC
CHECKED BY: GM
PROJECT No:14101
DATE/ISSUE:

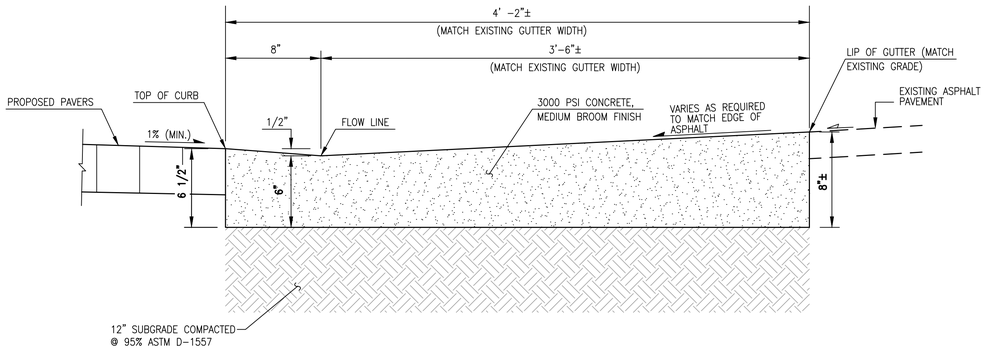
SHEET TITLE:

GRADING PLAN (NORTH)

SHEET NUMBER:

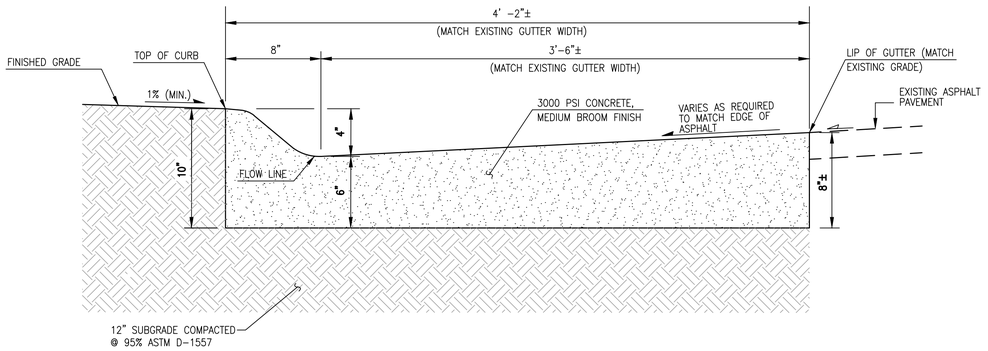
C1.0

2017.002.4
HIGH MESA Consulting Group
Engineers, Surveyors & Subsurface Utility Consultants
6010-B Midway Park Blvd. NE • Albuquerque, New Mexico 87109
Phone: 505.345.4250 • Fax: 505.345.4254 • www.highmesacg.com



CURB & GUTTER ('ADA') SECTION

SCALE: 1" = 0'-6"



CURB & GUTTER ('ROLL') SECTION

SCALE: 1" = 0'-6"

DRAINAGE PLAN

THIS PROJECT, LOCATED AT THE SOUTHEAST CORNER OF THE INTERSECTION OF MENAUL BLVD NE AND EDITH BLVD NE, REPRESENTS A SITE MODIFICATION TO AN EXISTING CEMETERY SITE WITHIN AN INFILL AREA. THE PROPOSED CONSTRUCTION CONSISTS OF THE DEVELOPMENT OF "CAMINO ENCANTADO" WITH HARDSCAPE AND STRUCTRUAL IMPROVEMENTS (I.E. ENCLOSED 'COURTS' WITH WALLS, BENCHES, BRICK PAVERS). THE PROPOSED IMPROVEMENTS ARE PART OF THE 'ROSE DRIVE CLOSURE' / 'CAMINO ENCANTADO' IMPROVEMENTS REFERENCED IN THE APPROVED 2015 CONCEPTUAL GRADING AND DRAINAGE PLAN FOR SITE DEVELOPMENT PLAN (ADMINISTRATIVE AMENDMENT), DATED 09-01-2015 (H15-D016).

THE DRAINAGE CONCEPT FOR THE PROPOSED IMPROVEMENTS IS TO MAINTAIN THE EXISTING DRAINAGE PATTERN FOR THE SITE, WHILE PROVIDING POSITIVE DRAINAGE FROM THE INTERIOR OF EACH COURT. THE SUBMITTAL IS MADE IN SUPPORT OF BUILDING PERMIT APPROVAL WITHIN THE JURISDICTION OF THE CITY OF ALBUQUERQUE.

THE PROJECT CONSISTS OF FOUR COURTS IN TOTAL TO BE CONSTRUCTED; EACH COURT SHALL INCLUDE A SEMI-PERVIOUS BRICK PAVER SYSTEM TO MAXIMIZE INFILTRATION OF STORMWATER. THE PROPOSED IMPROVEMENTS WILL RESULT IN REPLACING 3900 SF OF PERVIOUS LANDSAPING WITH IMPERVIOUS WALLS, BRICK PAVERS, AND BENCHES (BANCOS). CALCULATIONS INCLUDED HEREWITH DEMONSTRATE THE IMPROVEMENTS WILL RESULT IN A MINIMAL (0.2 CFS) INCREASE IN RUNOFF GENERATED.

WHILE THERE ARE NO DESIGNATED AREAS TO CAPTURE THE FIRST FLUSH FROM THESE IMPROVEMENTS, A MAJORITY OF THE RUNOFF FROM THESE IMPROVED AREAS WILL DRAIN ONTO EXISTING ADJACENT LANDSCAPED (GRASS TURF) AREAS THAT WILL MANAGE AND CONTROL THE DEVELOPED RUNOFF TO THE MAXIMUM EXTENT PRACTICABLE IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE DRAINAGE ORDINANCE.

CALCULATIONS

SITE CHARACTERISTICS

1. PRECIPITATION ZONE = 2
2. $P_{6,100} = P_{360}$ = 2.35
3. TOTAL PROJECT AREA (A_T) = 3,900 SF / 0.09 AC
4. EXISTING LAND TREATMENT

TREATMENT	AREA (SF/AC)	%
B	3,900 / 0.09	100

5 DEVELOPED LAND TREATMENT

TREATMENT	AREA (SF/AC)	%
D	3,900 / 0.09	100

EXISTING CONDITION

1. VOLUME
   $E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$
   E_W = (0.53*0.00)/0.09 = 0.78 IN
   $V_{100} = (E_W/12)A_T$ = (0.78/12)0.09 = 0.0058 AC-FT = 250 CF
2. PEAK DISCHARGE
   $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$
   $Q_P = Q_{100}$ = (2.28*0.09) = 0.2 CFS

DEVELOPED CONDITION

1. VOLUME
   $E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$
   E_W = ((0.53*0.00) + (0.78*0.00) + (1.13*0.00) + (2.12*0.09))/0.09 = 2.12 IN
   $V_{100} = (E_W/12)A_T$ = (2.12/12)0.09 = 0.0158 AC-FT = 690 CF
2. PEAK DISCHARGE
   $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$
   $Q_P = Q_{100}$ = ((1.56*0.00) + (2.28*0.00) + (3.14*0.00) + (4.70*0.09)) = 0.4 CFS

COMPARISON

1. VOLUME
   ΔV_{100} = 690 - 250 = 440 CF (INCREASE)
2. PEAK DISCHARGE
   ΔQ_{100} = 0.4 - 0.2 = 0.2 CFS (INCREASE)

LEGEND

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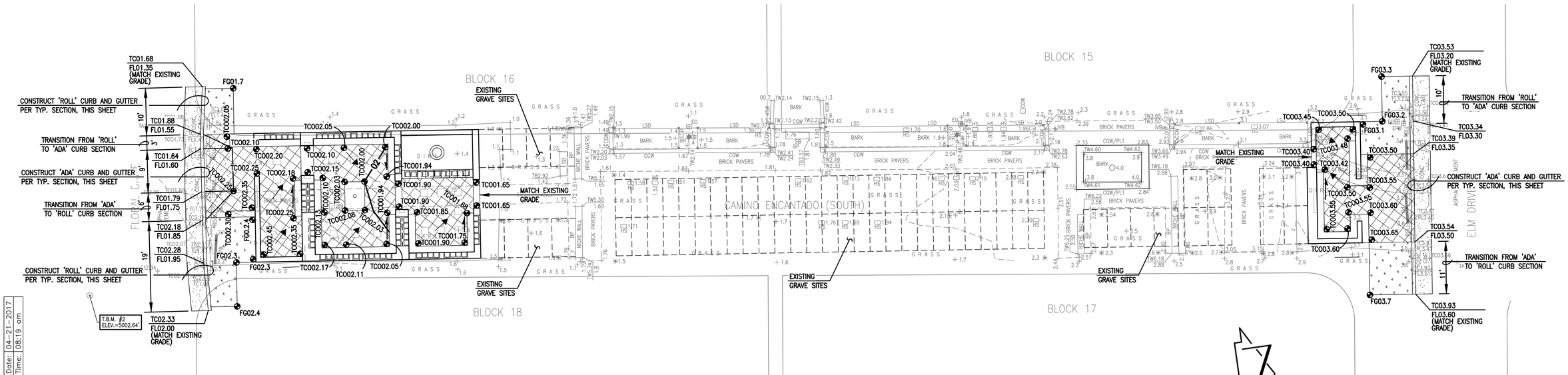

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2017.002.4
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J. GRAEME MEANS
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