

CITY OF ALBUQUERQUE



April 11, 2016

Richard J. Berry, Mayor

J. Graeme Means, P.E.
High Mesa Consulting Group
4715 Moon St NE
Albuquerque, NM, 87111

**RE: Osuna Elementary School
Grading and Drainage Plan for Phase I
Drainage Master Plan Update
Engineer's Stamp Date 4-4-2016 (File:F20D010A)**

Dear Mr. Means:

Based upon the information provided in your submittal received 4-8-2016, the above referenced Grading and Drainage Plan is approved for Grading Permit.

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

PO Box 1293

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

Albuquerque

New Mexico 87103

www.cabq.gov

Sincerely,

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

Orig: Drainage file



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: _____ **Building Permit #:** _____ **City Drainage #:** _____
DRB#: _____ **EPC#:** _____ **Work Order#:** _____
Legal Description: _____
City Address: _____

Engineering Firm: _____ **Contact:** _____
Address: _____
Phone#: _____ **Fax#:** _____ **E-mail:** _____

Owner: _____ **Contact:** _____
Address: _____
Phone#: _____ **Fax#:** _____ **E-mail:** _____

Architect: _____ **Contact:** _____
Address: _____
Phone#: _____ **Fax#:** _____ **E-mail:** _____

Other Contact: _____ **Contact:** _____
Address: _____
Phone#: _____ **Fax#:** _____ **E-mail:** _____

Check all that Apply:

DEPARTMENT:

____ HYDROLOGY/ DRAINAGE
 ____ TRAFFIC/ TRANSPORTATION
 ____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

____ ENGINEER/ ARCHITECT CERTIFICATION
 ____ CONCEPTUAL G & D PLAN
 ____ GRADING PLAN
 ____ DRAINAGE MASTER PLAN
 ____ DRAINAGE REPORT
 ____ CLOMR/LOMR
 ____ TRAFFIC CIRCULATION LAYOUT (TCL)
 ____ TRAFFIC IMPACT STUDY (TIS)
 ____ EROSION & SEDIMENT CONTROL PLAN (ESC)
 ____ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

____ BUILDING PERMIT APPROVAL
 ____ CERTIFICATE OF OCCUPANCY
 ____ PRELIMINARY PLAT APPROVAL
 ____ SITE PLAN FOR SUB'D APPROVAL
 ____ SITE PLAN FOR BLDG. PERMIT APPROVAL
 ____ FINAL PLAT APPROVAL
 ____ SIA/ RELEASE OF FINANCIAL GUARANTEE
 ____ FOUNDATION PERMIT APPROVAL
 ____ GRADING PERMIT APPROVAL
 ____ SO-19 APPROVAL
 ____ PAVING PERMIT APPROVAL
 ____ GRADING/ PAD CERTIFICATION
 ____ WORK ORDER APPROVAL
 ____ CLOMR/LOMR
 ____ PRE-DESIGN MEETING
 ____ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: ____ Yes ____ No

DATE SUBMITTED: _____ **By:** _____

COA STAFF: _____ ELECTRONIC SUBMITTAL RECEIVED: ____

DRAINAGE PLAN

THIS SUBMITTAL REPRESENTS AN UPDATE TO A 1993 MASTER DRAINAGE PLAN. THE SITE, LOCATED IN THE NORTHEAST HEIGHTS OF THE ALBUQUERQUE METROPOLITAN AREA, IS SITUATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF OSUNA ROAD NE AND MOON STREET NE. THE SITE IS CURRENTLY DEVELOPED AS AN ALBUQUERQUE PUBLIC SCHOOLS ELEMENTARY SCHOOL WITH PERMANENT AND PORTABLE SCHOOL BUILDINGS, A TURF GRASS JOINT-USE MULTI-PURPOSE FIELD, PAVED PARKING LOTS, PLAYGROUND, AND AN ONSITE PRIVATE DETENTION POND.

THIS MDP UPDATE PRECEDES THE DESIGN OF MORE SPECIFIC SITE AND PLAYGROUND MODIFICATIONS. THE PLAYGROUND MODIFICATIONS LIE WITHIN BASINS 1 AND 2 AND INCLUDE PRIVATE STORM DRAINAGE IMPROVEMENTS AND UPGRADES. BASINS 1 AND 2 ARE SUBJECT TO CONTROLLED DISCHARGE TO THE RESIDENTIAL NEIGHBORHOOD IMMEDIATELY WEST OF THE SITE. BASIN 4, ON THE OTHER HAND, IS ALLOWED FREE DISCHARGE TO OSUNA ROAD NE. BASIN 4 WILL UNDERGO MINOR SITE DRAINAGE IMPROVEMENTS TO ELIMINATE THE DISCHARGE OF DEVELOPED RUNOFF OVER A PUBLIC SIDEWALK. NO WORK IS PROPOSED AT THIS TIME WITHIN BASINS 3, 5 OR 6.

THIS SUBMITTAL IS MADE IN ADVANCE OF THE DESIGN OF THE SITE SPECIFIC CONSTRUCTION PLANS. THIS UPDATE IS INTENDED TO ESTABLISH THE CRITERIA BY WHICH THE SUBSEQUENT PLANS WILL BE DESIGNED.

II. PROJECT DESCRIPTION

AS SHOWN BY THE VICINITY MAP, THE SITE IS LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF OSUNA ROAD NE AND MOON STREET NE. THE SITE IS FULLY DEVELOPED AS AN ALBUQUERQUE PUBLIC SCHOOLS ELEMENTARY SCHOOL. AS SHOWN BY PANEL 143 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS PUBLISHED BY FEMA FOR BERNALILLO COUNTY, NEW MEXICO, DATED SEPTEMBER 26, 2008, THIS SITE DOES NOT LIE WITHIN NOR IS ADJACENT TO A DESIGNATED FLOOD HAZARD ZONE. BASINS 1 AND 2, HOWEVER, DRAIN TO A 10' PUBLIC DRAINAGE AND PEDESTRIAN EASEMENT THAT DISCHARGES TO NORTHRIDGE DRIVE NE. PER THE 1993 MDP, A HYDRAULIC JUMP OCCURS AT THE INTERSECTION WITH GENERAL BRADLEY NE. AS A RESULT, BASINS 1, 2 AND 3 ARE SUBJECT TO CONTROLLED DISCHARGE. BASIN 3 PRESENTLY CONTAINS ITS RUNOFF.

III. BACKGROUND DOCUMENTS & RESEARCH

REVIEW OF THE FOLLOWING DOCUMENTS WERE USED IN THE PREPARATION OF THIS SUBMITTAL:

- TOPOGRAPHIC SURVEY PREPARED BY HIGH MESA CONSULTING GROUP, NMPS 15075, DATED 12-29-2010. THE REFERENCE SURVEY ESTABLISHES THE EXISTING CONDITIONS FOR THE SITE.
- COMPREHENSIVE DRAINAGE PLAN FOR OSUNA ELEMENTARY SCHOOL PREPARED BY CHAVEZ-GRIEVES, NMPE 11830, DATED 6/21/93, 7/15/93, AND 7/30/93, AND AMENDED TO INCLUDE "DRAINAGE ANALYSIS OF DOWNSTREAM CONDITIONS" DATED MAY 26, 1994. THE 1993 PLAN DEFINED THREE (3) ONSITE DRAINAGE BASINS AS WELL AS LIMITATIONS ON THE ABILITY OF EACH BASIN TO DISCHARGE FROM THE SITE. AS A RESULT, THE SITE IS REQUIRED TO CONTROL ITS DISCHARGE TO NORTHRIDGE DRIVE NE TO A MAXIMUM ALLOWABLE RATE OF 17.84 CFS. THE 17.84 CFS ALLOWABLE DISCHARGE RATE WAS DETERMINED BY AHYMO MODEL CONTAINED WITHIN THE MAY 26, 1994 AMENDMENT.
- GRADING AND DRAINAGE PLAN FOR CAFETERIUM AND CLASSROOM ADDITIONS PREPARED BY ISAACSON & ARFMAN, NMPE 10519, DATED 02-01-2005 AND CERTIFIED 02-21-2006. THIS REFERENCE PLAN ADDRESSED ONLY A PORTION OF THE SITE THEREBY CREATING BUT NOT DEFINING BASIN 4, THE PARKING LOT AT THE NORTHEAST CORNER OF THE SITE, ESTABLISHING THE PRECEDENT FOR FREE DISCHARGE TO OSUNA ROAD NE. THE PLAN ALSO CREATED BASIN 5, THE BUSBAY, ESTABLISHING THE PRECEDENT FOR THE FREE DISCHARGE OF THAT BASIN TO MOON STREET.
- GRADING AND DRAINAGE PLAN FOR CLASSROOM BUILDING ADDITIONS PREPARED BY ISAACSON & ARFMAN, NMPE 10519, DATED 12-05-07 AND 04-23-09 AND CERTIFIED 09-15-2009 AND 09-22-09. THIS REFERENCE PLAN ADDRESSED ONLY A PORTION OF THE SITE THEREBY CREATING BUT NOT DEFINING BASIN 6, THE PARKING LOT AT THE SOUTHEAST CORNER OF THE SITE, ESTABLISHING THE PRECEDENT FOR FREE DISCHARGES TO MOON STREET. THE PLAN ALSO PROVIDED THE SIZES AND TYPES OF PRIVATE ONSITE DRAINAGE IMPROVEMENTS SPECIFIED BY THAT PLAN AND ENCOUNTERED ON THE SITE.

IV. EXISTING CONDITIONS

AS INDICATED ABOVE, THE SITE IS CHARACTERIZED BY SIX (6) DRAINAGE BASINS MORE FULLY DESCRIBED BELOW. OVER TIME, BASIN BOUNDARIES HAVE SHIFTED AND HAVE BEEN REDEFINED. THE REQUIREMENT FOR THE CONTROLLED DISCHARGE TO NORTHRIDGE DRIVE NE HAS NOT CHANGED NOR HAS THE ALLOWABLE DISCHARGE RATE TO THAT PUBLIC STREET.

- BASIN 1 - THIS BASIN CONSISTS OF THE PERMANENT SCHOOL BUILDINGS, THE MAJORITY OF THE SOUTHEAST PARKING LOT, AND THE MAJORITY OF THE PLAYGROUND. THIS BASIN GENERALLY DRAINS FROM EAST TO WEST DISCHARGING TO AN ON-SITE PRIVATE DETENTION POND LOCATED AT THE SOUTHWEST CORNER OF THE SITE. FLOWS ENTER AS SURFACE DRAINAGE AND DIRECT DISCHARGE VIA PRIVATE STORM DRAIN. BOTH FORMS OF DISCHARGE TO THE POND CAUSE EROSION. IN ADDITION, THE SURFACE FLOW ACROSS THE UNPAVED PLAYGROUND CAUSES EROSION AND LOCALIZED FLOODING OF THE SAND PLAY AREAS. THIS BASIN, PER THE 1993 MDP, ACCOUNTS FOR APPROXIMATELY 4 CFS DEVELOPED RUNOFF RELEASED FROM THE DETENTION POND TO AN ASPHALT PAVED RUNDOWN WITHIN THE 10' PUBLIC DRAINAGE AND PEDESTRIAN EASEMENT AT THE SOUTHWEST CORNER OF THE SITE. FROM THIS POINT, RUNOFF COMBINED WITH UNCONTROLLED DISCHARGE FROM BASIN 2, THE COMBINED DISCHARGE FLOWS WEST WITHIN NORTHRIDGE DRIVE NE TO ITS INTERSECTION WITH GENERAL BRADLEY NE WHERE A HYDRAULIC JUMP OCCURS. FROM THIS POINT, RUNOFF FROM BASIN A ULTIMATELY OUTFALLS TO THE BEAR ARROYO DOWNSTREAM FROM THE SITE.
- BASIN 2 CONSISTS OF THE TURF GRASS JOINT-USE MULTI-PURPOSE FIELD, A PORTION OF THE NORTHEAST PARKING LOT, THREE PORTABLE CLASSROOMS AND A SMALL PORTION OF THE PLAYGROUND. THIS BASIN SURFACE DRAINS FROM NORTHEAST TO SOUTHWEST WITH FREE DISCHARGE TO THE 10' PUBLIC DRAINAGE AND PEDESTRIAN EASEMENT. THIS BASIN, PER THE 1993 MDP, ACCOUNTS FOR APPROXIMATELY 15 CFS DEVELOPED RUNOFF.
- BASIN 3 - THIS BASIN CONSISTS PRIMARILY OF THE UNDEVELOPED 20' PNM UTILITY EASEMENT RUNNING ALONG THE SOUTH EDGE OF THE PROPERTY. THIS AREA IS CURRENTLY GRADED SUCH THAT IT RETAINS THE STORM WATER RUNOFF THAT FALLS WITHIN THE BASIN. SHOULD THIS AREA FAIL TO CONTAIN ITS RUNOFF, OVERFLOW WILL DRAIN FROM THE NORTHWEST CORNER OF THE BASIN, FLOWING NORTH ALONG THE WEST EDGE OF BASIN 1 TO THE 10' PUBLIC DRAINAGE AND PEDESTRIAN EASEMENT.
- BASIN 4 - THIS BASIN GENERALLY CONSISTS OF THE NORTHERLY PORTION OF THE NORTHEAST PARKING LOT. FLOWS FROM SOUTH TO NORTH DISCHARGE THROUGH CURB CUTS INTO LANDSCAPED AREAS. FROM THIS POINT, THE RUNOFF, MEASURING APPROXIMATELY 1.9 CFS, DRAINS NORTH TO FLOW OVER THE EXISTING PUBLIC SIDEWALK ON THE SOUTH SIDE OF OSUNA ROAD NE CARRYING SEDIMENT WITH IT.
- BASIN 5 - THIS BASIN IS RELATIVELY SMALL AND CONSISTS OF THE BUS BAY. THIS BASIN CONTRIBUTES APPROXIMATELY 0.5 CFS FREE DISCHARGE TO MOON STREET NE PER THE 2005 PLAN REFERENCED ABOVE. FROM THIS POINT, THE RUNOFF FLOWS SOUTH WITHIN PUBLIC STREETS TO EVENTUALLY ENTER THE BEAR ARROYO.
- BASIN 6 - THIS BASIN CONSISTS OF THE SOUTHEAST CORNER OF THE SITE, PRIMARILY PARKING LOT. THIS BASIN DRAINS FROM WEST TO EAST, FREELY DISCHARGING APPROXIMATELY 0.9 CFS TO MOON STREET NE PER THE 2009 PLAN REFERENCED ABOVE. FROM THIS POINT, THE RUNOFF FLOWS SOUTH WITHIN PUBLIC STREETS TO EVENTUALLY ENTER THE BEAR ARROYO.

V. DEVELOPED CONDITIONS

THE PROPOSED IMPROVEMENTS ADDRESSED BY THIS MASTER DRAINAGE PLAN LIE WITHIN BASINS 1, 2 AND 4.

- BASIN 1 - THIS BASIN WILL INCREASE IN SIZE AND RECEIVE THE MAJORITY OF THE PLANNED IMPROVEMENTS. THESE IMPROVEMENTS WILL CONSIST OF GRADING AND PAVING IMPROVEMENTS TO STABILIZE THE CURRENTLY ERODIBLE SURFACES WHILE CREATING A FORMAL PLAYGROUND. RUNOFF GENERATED UPSTREAM OF THE PLAYGROUND WILL BE ROUTED VIA PRIVATE STORM DRAIN TO THE DETENTION POND AT THE SOUTHWEST CORNER OF THE SITE. AT THE SAME TIME, THE DETENTION POND WILL BE RECONSTRUCTED FOR IMPROVED CAPACITY, EROSION CONTROL AND AN EMERGENCY SPILLWAY. THIS BASIN WILL CONTINUE TO DISCHARGE TO THE 10' PUBLIC DRAINAGE AND PEDESTRIAN EASEMENT DESCRIBED IN PRECEDING SECTIONS. THE POND WILL CONTINUE TO RELEASE ITS RUNOFF AT A CONTROLLED RATE SUCH THAT WHEN COMBINED WITH THE DISCHARGE FROM BASIN 2 IT DOES NOT EXCEED THE PREVIOUSLY ESTABLISHED ALLOWABLE RELEASE RATE OF 17.84 CFS.
- BASIN 2 - THIS BASIN WILL CONTINUE TO DRAIN FROM NORTHEAST TO SOUTHWEST TO THE 10' PUBLIC DRAINAGE AND PEDESTRIAN EASEMENT. RUNOFF WILL BE CONVEYED VIA SURFACE IMPROVEMENTS. THIS BASIN WILL EXPERIENCE A DECREASE IN SIZE DUE TO THE MAGNITUDE OF IMPROVEMENTS INCORPORATED INTO THE BASIN 1 BOUNDARIES.
- BASIN 3 - NO IMPROVEMENTS ARE PROPOSED TO BASIN 3. AS IN THE EXISTING CONDITION, SHOULD THIS AREA FAIL TO CONTAIN ITS RUNOFF, OVERFLOW WILL DRAIN FROM THE NORTHWEST CORNER OF THE BASIN, FLOWING NORTH ALONG THE WEST EDGE OF BASIN 1 TO THE 10' PUBLIC DRAINAGE AND PEDESTRIAN EASEMENT.
- BASIN 4 - TO MITIGATE THE DISCHARGE OF DEVELOPED RUNOFF AND SEDIMENT ACROSS THE PUBLIC SIDEWALK, THE DEVELOPED FLOWS FROM THE PARKING LOT WILL BE COLLECTED VIA NEW CONCRETE RUNDOWN EXTENDING FROM THE PARKING LOT TO THE BACK OF SIDEWALK WHERE A SIDEWALK CULVERT IS PROPOSED. THE NEW SIDEWALK CULVERT WILL BE CONSTRUCTED BY THE SO #19 PERMIT PROCESS.
- BASIN 5 - NO IMPROVEMENTS ARE PROPOSED TO BASIN 5 AT THIS TIME.
- BASIN 6 - NO IMPROVEMENTS ARE PROPOSED TO BASIN 6 AT THIS TIME.

VI. GRADING PLAN

THE GRADING PLAN SHOWS 1.) EXISTING GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'-0" INTERVALS AS TAKEN FROM THE ABOVE REFERENCED TOPOGRAPHIC SURVEY DATED 12/29/2009, 2.) PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'-0" INTERVALS, 3.) THE LIMIT AND CHARACTER OF THE EXISTING IMPROVEMENTS TAKEN FROM THE ABOVE REFERENCED TOPOGRAPHIC SURVEY DATED 12/29/2009, 4.) THE LIMIT AND CHARACTER OF THE PROPOSED IMPROVEMENTS, AND 5.) CONTINUITY BETWEEN EXISTING AND PROPOSED GRADES. AS SHOWN BY THIS PLAN, THE PROPOSED IMPROVEMENTS WILL HONOR AND MAINTAIN EXISTING DRAINAGE PATTERNS AND CONCEPTS AS ESTABLISHED BY PRIOR SUBMITTALS AS REFERENCED ABOVE.

VII. CALCULATIONS

THE CALCULATIONS THAT APPEAR HEREON ANALYZE THE EXISTING CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT. THE PROCEDURE FOR 40 ACRE AND SMALLER BASINS, AS SET FORTH IN THE REVISION OF SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 2, DESIGN CRITERIA, DATED JANUARY, 1993, HAS BEEN USED TO QUANTIFY THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED. AS SHOWN BY THESE CALCULATIONS, THE PROPOSED IMPROVEMENTS WILL RESULT IN AN OVERALL INCREASE IN THE DEVELOPED RUNOFF GENERATED BY THIS SITE. ROUTING MUCH OF THIS RUNOFF THROUGH THE ONSITE PRIVATE DETENTION POND WILL MITIGATE THE EFFECTS OF THAT INCREASE SO THAT THE CUMULATIVE EFFECTS OF DEVELOPMENT WILL NOT EXCEED THE ALLOWABLE DISCHARGE RATE OF 17.84 CFS.

THE REQUIRED CAPACITY OF THE PRIVATE DETENTION POND WAS EVALUATED BY HYDROGRAPH ANALYSIS. THE STORAGE CAPACITY OF THE PRIVATE DETENTION POND WAS CALCULATED USING THE AVERAGE END-AREA METHOD. THE RELEASE RATE FROM THE POND WAS CALCULATED USING MANNING'S EQUATION FOR GRAVITY FLOW IN PIPES AND THE ORIFICE EQUATION. IT WAS DETERMINED THAT THE MANNING'S EQUATION GOVERNED. THE EMERGENCY SPILLWAY CAPACITY WAS CALCULATED USING THE WEIR EQUATION. THE CAPACITY OF THE ASPHALT PAVED RUNDOWN WITHIN THE 10' PUBLIC DRAINAGE AND PEDESTRIAN EASEMENT WAS EVALUATED BY THE MANNING EQUATION FOR OPEN CHANNEL FLOW.

VIII. CONCLUSIONS

THE FOLLOWING CONCLUSIONS ARE PRESENTED AS A RESULT OF THE EVALUATIONS AND ANALYSES CONTAINED HEREIN:

- THE PROGRAMMED IMPROVEMENTS PROPOSED HEREIN REPRESENT MODIFICATIONS TO AN EXISTING SITE WITHIN AN INFILL AREA.
- THE SITE IS NOT LOCATED WITHIN A DESIGNATED FLOOD HAZARD AREA.
- THIS SITE IS SUBJECT TO THE CONTROLLED RELEASE OF RUNOFF FROM BASINS 1, 2 AND 3 WITH A COMBINED ALLOWABLE DISCHARGE RATE OF 17.84 CFS TO NORTHRIDGE DRIVE NE.
- THE INCREASES IN DEVELOPED RUNOFF ANTICIPATED BY THE PROPOSED DEVELOPMENT WILL BE MITIGATED BY ROUTING BASIN 1 FLOWS THROUGH AN ONSITE PRIVATE DETENTION POND.
- THE RELEASE RATE FROM THE ABOVE REFERENCED POND (BASIN 1) WILL BE 8.2 CFS.
- THE OVERFLOW SPILLWAY FROM THE ABOVE REFERENCED POND WILL BE 22.8 CFS, GREATER THAN THE 100-YEAR PEAK DISCHARGE INFLOW OF 18.7 CFS.
- BASIN 2 WILL FREE DISCHARGE TO THE 10' PUBLIC DRAINAGE AND PEDESTRIAN EASEMENT AT 9.4 CFS.
- THE COMBINED DISCHARGE FROM BASINS 1 AND 2 WILL BE 17.6 CFS, LESS THAN THE ALLOWABLE DISCHARGE RATE OF 17.84 CFS.
- THE RUNOFF FROM BASIN 3 WILL BE CONTAINED WITHIN THAT BASIN. SHOULD DEVELOPMENT LATER OCCUR, THE DEVELOPED RUNOFF SHALL BE ROUTED THROUGH THE BASIN 1 POND TO MITIGATE THE EFFECTS OF ANY INCREASES.
- BASIN 4 IS ALLOWED FREE DISCHARGE TO OSUNA ROAD NE AT 1.9 CFS.
- BASIN 5 IS ALLOWED FREE DISCHARGE TO MOON STREET NE AT 0.5 CFS.
- BASIN 6 IS ALLOWED FREE DISCHARGE TO MOON STREET AT 0.9 CFS.
- THE IMPROVEMENTS PROPOSED BY THIS MASTER DRAINAGE PLAN ARE CONSISTENT WITH THE DRAINAGE CONCEPTS AND PATTERNS SET FORTH BY THE PREVIOUSLY APPROVED 1993 MASTER DRAINAGE PLAN AND SUBSEQUENT PARTIAL PLANS AS REFERENCED ABOVE.
- THE PROPOSED IMPROVEMENTS WILL NOT INCREASE THE PEAK DISCHARGE OF RUNOFF FROM THIS SITE.
- THE PROPOSED IMPROVEMENTS WILL HAVE NO ADVERSE IMPACT ON DOWNSTREAM CAPACITY OR DOWNSTREAM PROPERTIES.

LEGEND

- ARD

ASPH

BGP

BOH

C

C&G

C/FRD

C/PM

CB

CBN

CC

CCL

CCP

CCG

CL

CLD

CLDD

CLF

CMU

CO

CONC

CRD

CS

CSHR

CSW

CW

CWHR

DGA

DIG

DTC

E/PM

EA

EB

EC

ECB

EM

EP

EPB

ET

EV

FF

FH

FL

FLC

C/PM

GR

GRV

GS

GT

GW

HCS

ICT

INV

MB

MH

MHR

MLP

MP

MR

MRS

MS

MST

MTC

OH(2)

OHM

PB

PGE

PI

PS

PVC

RD

RRD

RRT

SAS

SAS/FRD

SGP

SMVB

SP

STD

STW

SVB

SW

SWC

TA

TB

TBP

TC

TCO

TR

TRS

TS

TW

TYP

VCP

VG

W/PM

WCR

WF

WFT

WHB

WIF

WL

WMB

WMC

WPP

WPPC

WV

WVB

X-WALK
- ✱

✱

○

1.0"

*
- ASPHALT RUNDOWN

ASPHALT BASKETBALL GOAL POST BUILDING OVERHANG COMMUNICATION

CURB AND GUTTER

COMMUNICATION LINE FROM RECORD DRAWING

COMMUNICATION LINE BY PAINT MARK

CONCRETE BOX

CONCRETE BENCH

COMMUNICATION CONDUIT

CONCRETE COLUMN

CONCRETE CYLINDER PIPE

CONCRETE GUARD POST

CENTERLINE

CENTERLINE OF DOOR

CENTERLINE OF DOUBLE DOOR

CHAIN LINK FENCE

CONCRETE MASONRY UNIT

SANITARY SEWER CLEANOUT

CONCRETE

CONCRETE RUNDOWN

CONCRETE STEPS

CONCRETE STEPS WITH METAL HANDRAIL

CONCRETE SIDEWALK

CONCRETE WALL

CONCRETE WALL WITH METAL HANDRAIL

DOUBLE GATE

DOUBLE IRON GATE

DRAIN THROUGH CURB

ELECTRIC LINE BY PAINT MARK

EDGE OF ASPHALT

ELECTRIC BOX

ELECTRIC CONDUIT

ELECTRIC CABINET

ELECTRIC METER

ELECTRIC PANEL

ELECTRIC PULLBOX

ELECTRIC TRANSFORMER

ELECTRIC VAULT

FINISHED FLOOR

FIRE HYDRANT

FLOWLINE

FIRE LINE CONNECTION

C/PM

GAS REGULATOR

GRAVEL

GAS SERVICE

GREASE TRAP

GUY WIRE

HANDICAP SIGN

IRRIGATION CONTROL TIMER

INVERT ELEVATION

IRRIGATION VALVE

METAL BENCH

MANHOLE

METAL HANDRAIL

METAL LIGHT POLE

METAL POLE

METAL RAMP

METAL RAMP WITH STEPS

METAL SIGN

METAL STEPS

METAL TRASH CAN

OVERHEAD ELECTRIC LINE (# OF LINES)

OVERHEAD ELECTRIC MAST

PARKING BUMPER

PLAYGROUND EQUIPMENT

PAINTED ISLAND

PARKING STRIPE

POLYVINYL CHLORIDE PIPE

ROOF DRAIN

ROCK RUNDOWN

RAILROAD TIE

SANITARY SEWER

SANITARY SEWER FROM RECORD DRAWING

STEEL GUARD POST

SMALL SPRINKLER VALVE BOX

STEEL POLE

TOP OF ASPHALT

TELEPHONE BOX

TETHERBALL POLE

TOP OF CURB

TOP OF CONCRETE

TELEPHONE RISER

TRAFFIC SIGNAL

TRAFFIC SIGN

TOP OF WALL

TYPICAL

VITRIFIED CLAY PIPE

VALLEY GUTTER

WATER LINE BY PAINT MARK

WHEELCHAIR RAMP

WATER FOUNTAIN

WATER FAUCET

WATER LINE HOT BOX

WROUGHT IRON FENCE

WATER LINE

WATER METER BOX

WATER METER CAN

WOOD POWER POLE

WOOD POWER POLE WITH CONDUIT

WATER VAULT

WATER VAULT BOX

PAINTED CROSSWALK

- ✱

✱

○

1.0"

*
- BOULDER

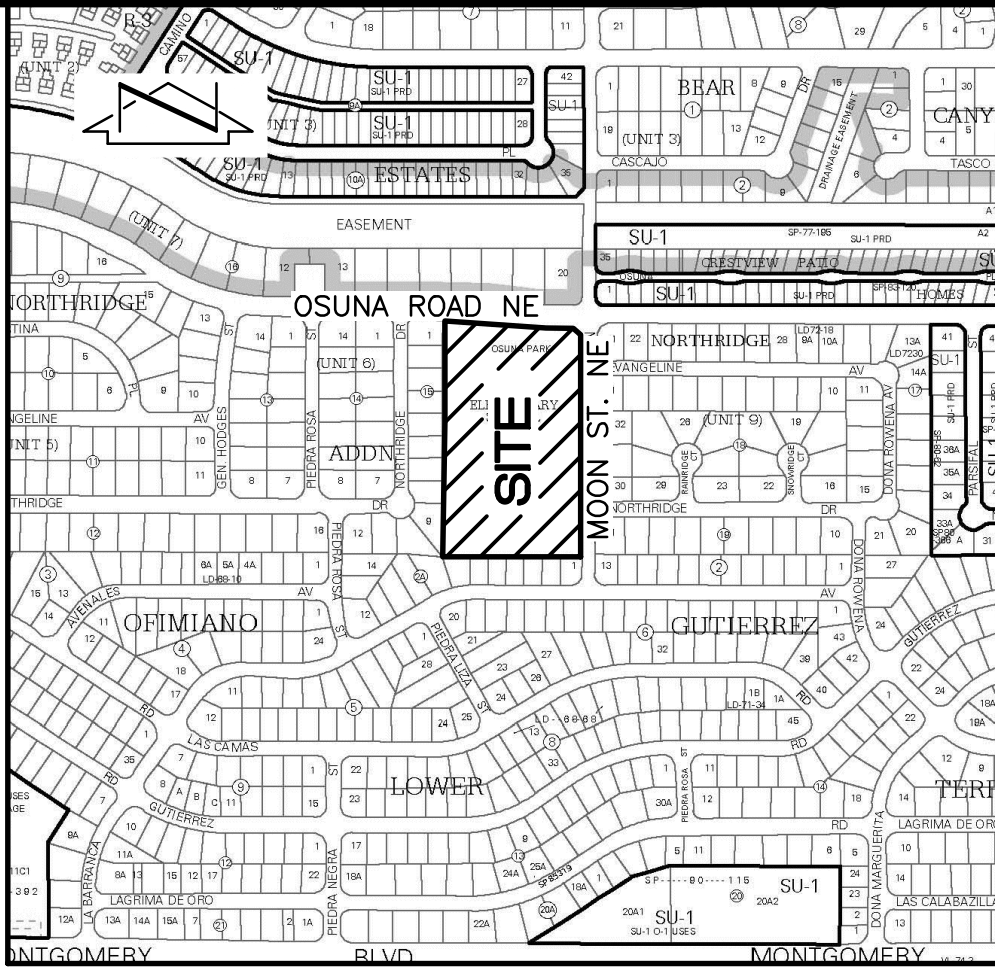
CONFEROUS TREE

DECIDUOUS TREE

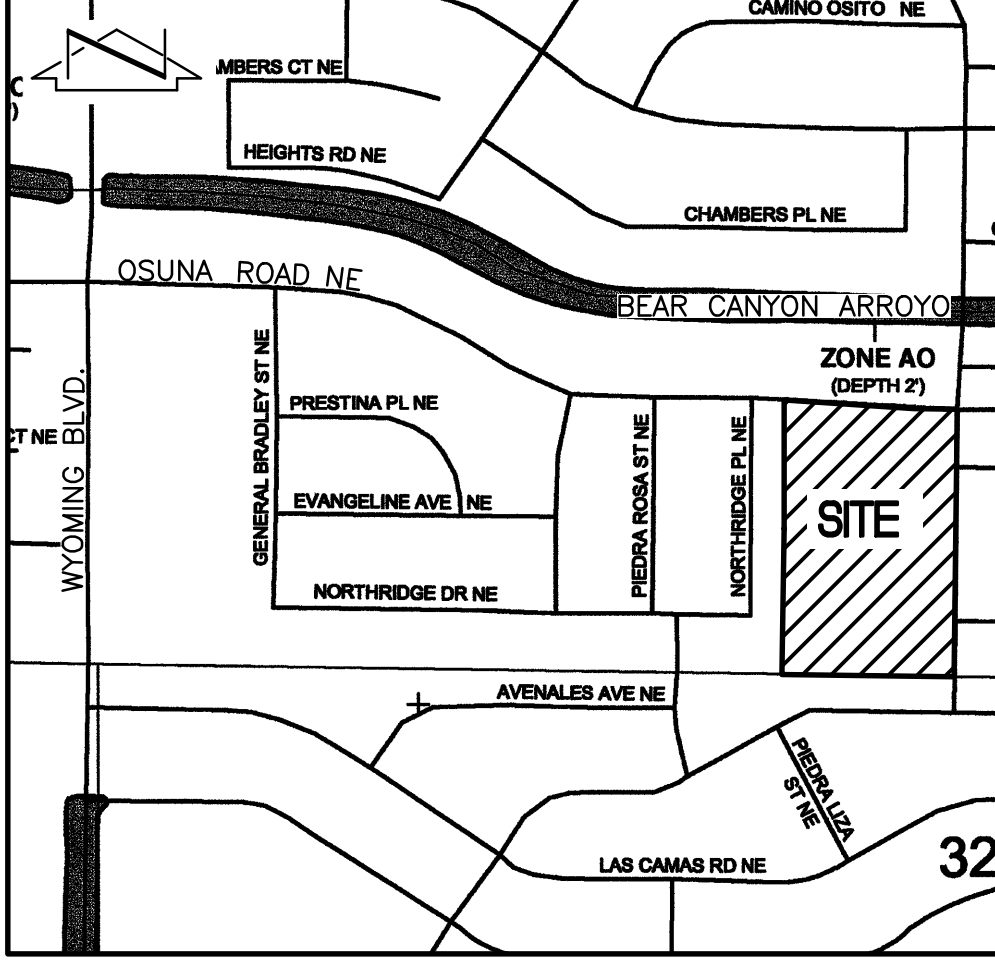
SHRUB

TREE DIAMETER

UTILITY MARKER



D6 VICINITY MAP F-20 SCALE: 1" = 750'



C6 FLOODPLAIN MAP PANEL 143 OF 825 NOT TO SCALE

LEGAL DESCRIPTION

TRACT A, OSUNA ELEMENTARY SCHOOL, ALBUQUERQUE, NEW MEXICO, AS THE SAME IS SHOWN AND DESIGNATED ON THE PLAT FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO ON FEBRUARY 08, 1995, BOOK 95C, PAGE 43.

BENCHMARKS

- PROJECT BENCHMARK

ACS 1 3/4" ALUMINUM DISK STAMPED "ACS BM 13-F19", EPOXIED ON TOP OF THE CONCRETE DROP INLET AT THE NNW QUADRANT OF THE INTERSECTION OF MONTGOMERY BOULEVARD AND WYOMING BOULEVARD N.E. ELEVATION = 5434.324 FEET (NAVD 1988)
- TEMPORARY BENCHMARK (T.B.M.) #1

A CHISELED "□" AT THE TOP BACK OF CURB, AS SHOWN ON SHEET 3. ELEVATION = 5512.38 FEET (NAVD 1988)
- TEMPORARY BENCHMARK (T.B.M.) #2

A SPIKE WITH CAP STAMPED "HMCQ CONTROL NMPS 11184", AS SHOWN ON SHEET 3. ELEVATION = 5502.59 FEET (NAVD 1988)
- TEMPORARY BENCHMARK (T.B.M.) #3

A CHISELED "□" AT THE TOP BACK OF CURB, AS SHOWN ON SHEET 3. ELEVATION = 5505.79 FEET (NAVD 1988)

INDEX OF DRAWINGS

C-101

C-102

C-103

C-104

C-105

C-106

DRAINAGE PLAN

CALCULATIONS

EXISTING CONDITIONS PLAN

DEVELOPED CONDITIONS PLAN

OUTFALL DETAIL

BASIN 3 GRADING PLAN (ADDED SHEET) - PROPOSED CONSTRUCTION

HIGH MESA Consulting Group

6010-B MIDWAY PARK BLVD. NE
ALBUQUERQUE, NEW MEXICO 87109
PHONE: 505.343.4250 FAX: 505.345.4254
www.highmesacg.com

ORIGINAL PLAN SIGNED BY JEFFREY S. MORTENSEN DATED 10-06-10 AND 02-04-11

1

3616

REGISTERED PROFESSIONAL ENGINEER

STATE OF NEW MEXICO

02-15-16
02-04-16

DRAINAGE PLAN

MASTER DRAINAGE PLAN

OSUNA ELEMENTARY SCHOOL

REVISIONS				COMMENTS			
NO.	DATE	BY	DESCRIPTION	NO.	DATE	BY	DESCRIPTION
1	02/11/16	JDS	DESIGN PLAN BASIN 3	1	02/11/16	JDS	DESIGN PLAN BASIN 3
2	02/16/16	GM	UPDATE BASIN 3	2	02/16/16	GM	UPDATE BASIN 3
3	04/16/16	GM	ADDRESS CITY COMMENTS	3	04/16/16	GM	ADDRESS CITY COMMENTS

PROJECT No. 2008.193.8
DESIGNED BY J.D.S.
DRAWN BY J.Y.R./B.L.E./S.C.C.
APPROVED BY J.G.M.
SHEET TITLE

DRAINAGE PLAN

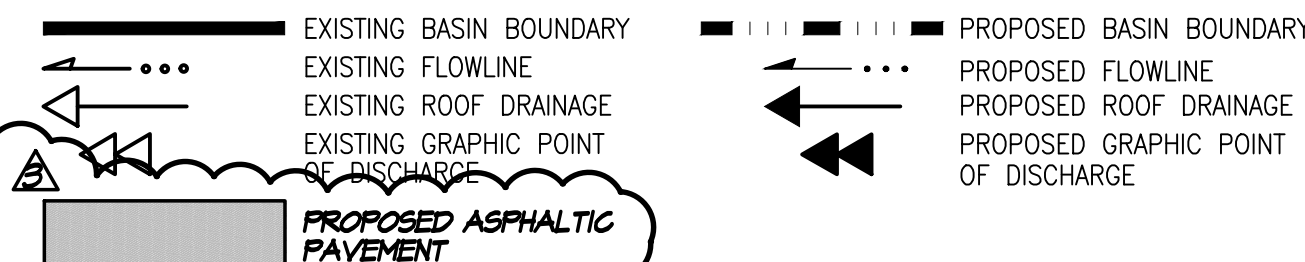
BENCHMARKS & TBM'S

REFER TO SHEET 1

DESIGN SURVEY NOTE:

THIS IS NOT A BOUNDARY SURVEY; DATA IS SHOWN FOR ORIENTATION ONLY. THE BOUNDARY INFORMATION DEPICTED BY THIS PLAN IS BASED UPON A BOUNDARY, TOPOGRAPHIC AND UTILITY SURVEY, PREPARED BY HIGH MESA CONSULTING GROUP, NMPS 15075, DATED 12/29/2009 (2008.193.9). **UPDATED TOPOGRAPHIC INFORMATION WITHIN BASIN 3 IS BASED UPON A PARTIAL TOPOGRAPHIC AND UTILITY SURVEY PREPARED BY HIGH MESA CONSULTING GROUP, NMPS NO. 15075, DATED 04/24/2015 (2015.184.5).**

DESIGN LEGEND



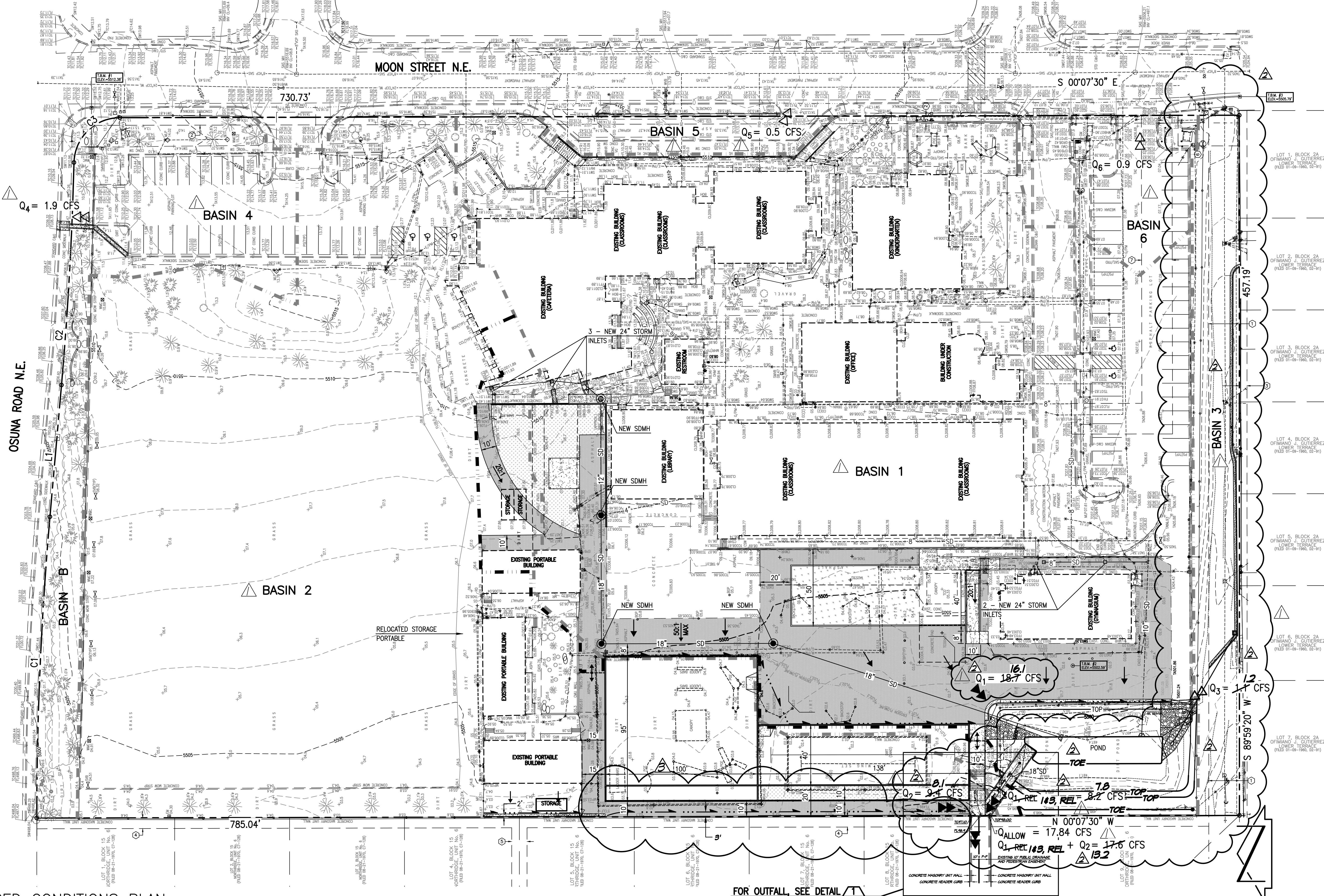
BOUNDARY TABLES

CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA
C1	2250.76'	197.00'	S 87°29'47" E	196.94'	05°00'54"
C2	2314.76'	145.54'	S 86°47'24" E	145.51'	03°36'08"
C3	30.00'	46.32'	S 44°21'29" E	41.85'	88°13'04"

EASEMENT KEYED NOTES

EASEMENTS

- 20' PNM EASEMENT GRANTED BY DOCUMENT FILED IN BOOK D-541, PAGE 159. ALSO DEPICTED ON PLAT 95C-43.
- 5' U.S. WEST EASEMENT RESERVED BY PLAT 95C-43
- 5' UTILITY EASEMENT GRANTED BY PLAT D2-91 (OFFSITE)
- 7' UTILITY EASEMENT GRANTED BY PLAT C7-128 (OFFSITE)
- 10' UTILITY EASEMENT GRANTED BY PLAT C7-128 (OFFSITE)
- 20' PNM AND QWEST EASEMENT GRANTED BY DOCUMENT FILED 10-04-2005, BOOK A104, PAGE 6247, DOC. #2005146649.
- CORRECTED 20' ABCWUA PUBLIC WATERLINE EASEMENT GRANTED BY DOCUMENT FILED 04-28-2009, DOC. #2009045437.



DEVELOPED CONDITIONS PLAN
MASTER DRAINAGE PLAN
OSUNA ELEMENTARY SCHOOL

NO.	DATE	BY	REVISIONS	COMMENTS
1	02/16/16	JDS	REV'D BASINS ADD Q'S	
2	02/16/16	GM	UPDATE BASIN 3	
3	04/16/16	GM	ADDRESS CITY COMMENTS	

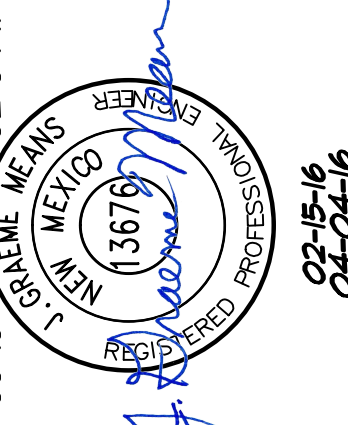
PROJECT No. 2008.193.8
DESIGNED BY J.D.S./R.J.C.
DRAWN BY J.Y.R./B.L.E./S.C.C.
APPROVED BY J.G.M./G.M.
SHEET TITLE

DEVELOPED
CONDITIONS
PLAN

C-104

SHEET 4 OF 6

ORIGINAL PLAN SIGNED BY
PROJECT & MARKED
10-08-10



HIGH MESA
Consulting Group
4010-B MIDWAY PARK BLVD. NE
ALBUQUERQUE, NEW MEXICO 87109
PHONE: 505.345.4250 FAX: 505.345.4254
www.highmesacg.com