



APPLICATION FOR PRELIMINARY PLAT

Planning & Development Department
30360 Cougar Bend, Bulverde, TX 78163
Telephone: 830-438-3612 - Fax: 830-438-4339

www.bulverdetx.gov

1. Name of Subdivision: QT 4028 Addition Unit No
Location Description/Nearest Intersection: Southwest Corner of Stahl Lane and SH -46

2. Owner/Applicant: QT South LLC c/o Paul Gorman
Address: 742 Northwest Loop 410, San Antonio, Texas 78216 Email: pgorman@quiktrip.com
Telephone: 210-332-4036 Fax: Mobile:

***Note: If applicant is person other than owner, a letter of authorization must be provided from owner.*

3. Licensed Engineer/Surveyor (technical contact): MatkinHoover Engineering c/o Joshua Valenta
Address: 8 Spencer Road, Suite 100, Boerne, Texas 78006 Email: gcook@matkinhoover.com
Telephone: 830-249-0600 Fax: Mobile:

4. Property Details:

City Limits:	<input checked="" type="checkbox"/> In <input type="checkbox"/> Out (ETJ)	Water Source:	<u>Texas Water Company</u>
Commercial:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sewage Treatment:	<u>Septic</u>
Residential:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	TxDOT Frontage:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
No. of Lots:	<u>1</u>	100-Year Floodplain:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Total Acreage without floodplain:	<u>9.645 AC</u>	Edwards Aquifer Zone:	<input checked="" type="checkbox"/> Recharge
Density Class:	<u>High</u>		<input type="checkbox"/> Contributing
Zoning Class:	<u>PDD</u>		

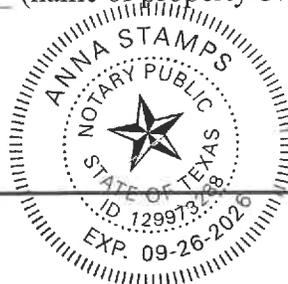
The undersigned agrees to comply with all platting and subdivision requirements of the City of Bulverde, and hereby authorizes the surveyor/engineer to record the approved final plat. The undersigned agrees to pay the appropriate fees as outlined in the Planning and Development Fee Schedule and agrees to pay fees for any additional review requiring consultation with City Consultants, including involvement of a contract engineer in a predevelopment conference. To the extent possible, City Staff will provide the Owner/Applicant with an estimate of fees should outside consultation be required.

PROPERTY OWNER'S ACKNOWLEDGEMENT

Paul T. Gorman _____ 7/25/25
Signature of Owner/Applicant Date

State of Texas
County of Bexar

This instrument was acknowledged before me on the 25 day of July, 2025, by
Paul T. Gorman (name of property owner).



Anna Stamps
Notary Public's Signature

(Notarial Seal)

Submittal Format:

****Plat submittals must follow format outlined in Pages 3 and 4 of this application.**



LETTER OF AUTHORIZATION FOR APPLICATION

Planning & Development Department
30360 Cougar Bend, Bulverde, TX 78163
Telephone: 830-438-3612 - Fax: 830-438-4339
www.bulverdetx.gov

***This form is only required for property owners allowing another person or entity to submit and amend documentation required by the City on the property owner's behalf.*

I, Paul Gorman Real Estate Project Manager, owner of the property, described in this application, authorize MatkinHoover ^{Josh Valenta} Graham Cook (name) to apply for a Preliminary Plat on my/our behalf of the property.

The Additional Applicant's information is:

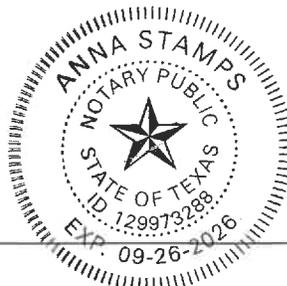
Company: MatkinHoover Engineering
Contact Name: Joshua Valenta & Graham Cook
Address: 8 Spencer Road, Suite 100
Boerne, Texas 78006

Signature of Owner/Applicant

7/25/25
Date

STATE OF TEXAS
COUNTY OF BEXAR

This instrument was acknowledged before me on the 25 day of July, 2025, by Paul T. Gorman (name of property owner).



Notary Public's Signature

(Notarial Seal)

Submittal Format:

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Planning and Development Preliminary Plat Application Checklist

ALL SUBMITTALS MUST FOLLOW THE FOLLOWING REQUIREMENTS TO BE ACCEPTED BY THE CITY OF BULVERDE FOR INITIAL REVIEW

- Plat Fees**
 - \$1250.00 + \$15.00 per lot single family; \$30.00 per acre for non-single family.
- Traffic Impact Analysis (TIA) Review**
 - \$1250.00 - Minor TIA
 - \$2500.00 - Major TIA
- Drainage Analysis Review Tier 1**
 - \$750.00
- Drainage Analysis Review Tier 2 single family residential**
 - \$1500.00 – (0-5 acres)
 - \$2500.00 + \$10/lot – (5+ acres)
- Drainage Analysis Review Tier 2 Commercial/Industrial/Multi-Family**
 - \$1750.00 - (0-5 acres)
 - \$2500.00 + \$10/acre (5+ acres)
- Subdivision Improvement Construction Plan Review (for more than one type of infrastructure, includes the entire limits of construction)**
 - \$2500.00
- Subdivision Improvement Construction Plan Review (for individual infrastructure, includes the entire limits of construction)**
 - \$1,250.00 + \$5.00/LF of each infrastructure improvement
- Subdivision Improvement Construction Inspections (deposit for inspections)**
 - \$78.00 + \$3.10/LF of each infrastructure improvement to be inspected
- In lieu of providing a physical copy, a digital copy on 18” by 24” sheets with a minimum of a 1/2-inch margin of Plat may be submitted.
- 1 Physical copy of Preliminary Plat Application.
- One electronic copy of each document required below and plat drawing(s) in PDF format.
- A check or money order for the platting fee, review fee and other required fees.
 - Plat Application & Review Fee
 - SWMP Review Fee (if applicable)
 - TIA Fee (if applicable)
- A digital copy of the Utility Layout showing all proposed utilities and easements
- A digital copy of the Traffic Impact Analysis

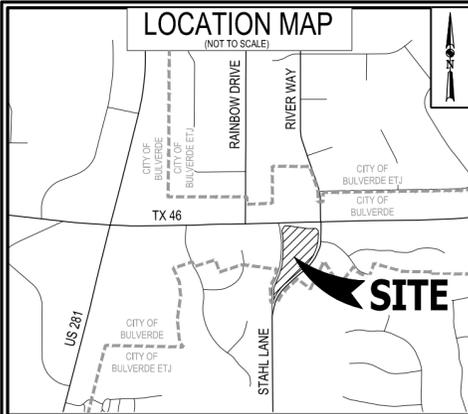
Submission Format:

3

**Plat submittals must follow format outlined in Pages 3 and 4 of this application.

- A digital copy of the approved Floodplain Development Permit from Comal County if subdivision includes property within the ETJ.
- A digital copy of the Drainage Study
- A digital copy of the Water Study and Water Supply Certification as applicable
- A digital copy of the Sewer Study as applicable
- A digital copy of the Environmental Assessment
- A digital copy of the Slope Map
- A digital copy of the Riparian Buffer Exhibit
- A digital copy of the Tree Protection, Replacement and Mitigation Plan
- A digital copy of the Certification by all utilities that will provide service to the proposed subdivision and all entities with regulatory authority pertaining to the proposed subdivision including but not limited to the following.
 - Electric Utility
 - Gas Utility
 - Public Water System
 - Public Sewer System
 - Telephone Utility
 - Cable TV Utility
 - United States Postal Service
 - Emergency Services
 - TxDOT
 - Comal County
 - TCEQ
 - Edwards Aquifer Authority
 - Other agencies or entities having jurisdiction
- A digital copy of evidence that the applicant has submitted the information required above to the utilities and entities described above
- A digital copy of Variance Requests (if any)
- A digital copy of Letter of Agent or other power of attorney authorizing signature of Owner on plat
- A digital copy of other applicable legal documents including deed restrictions, homeowner's association documents, etc.
- Verification of closure of the outer boundary of the plat
- For plats in the ETJ, A digital copy of an approved PIPROW permit from Comal County for any utilities, landscaping, street lighting, or other private features located in the public right-of-way
- A digital copy of If utility services must be extended beyond the outer boundary of the proposed subdivision across privately owned land to provide service to the lots in the proposed subdivision, then those utility service extensions must be contained in easements. Copies of the recorded easements for said utility extensions must be provided along with a map view showing the extensions from the outer boundary of the proposed subdivision to their ultimate connection points to be able to provide service.
- A digital copy of Lienholder's acknowledgement (if applicable)

Submittal Format:



PLAT NOTES

1. PROPERTY TRACT LIES WITHIN ZONE "X" (UN-SHADED) AS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) NO. 48091C0220F, DATED SEPTEMBER 2, 2009 FOR COMAL COUNTY, TEXAS.
2. THE SUBDIVISION LIES WITHIN THE COMAL INDEPENDENT SCHOOL DISTRICT.
3. NO STRUCTURES, WALLS OR OTHER OBSTRUCTIONS OF ANY KIND SHALL BE PLACED WITHIN THE LIMITS OF THE DRAINAGE. EASEMENTS SHOWN ON THIS PLAT. NO LANDSCAPING, FENCES OR OTHER TYPE OF MODIFICATIONS WHICH ALTER THE CROSS SECTIONS OF THE DRAINAGE EASEMENTS OR DECREASE THE HYDRAULIC CAPACITY OF THE EASEMENT. AS APPROVED, SHALL BE ALLOWED WITHOUT THE APPROVAL OF THE CITY ENGINEER. THE CITY BULVERDE AND COMAL COUNTY, TEXAS SHALL HAVE THE RIGHT OF INGRESS, EGRESS OVER GRANTOR'S ADJACENT PROPERTY TO REMOVE ANY OBSTRUCTIONS PLACED WITHIN THE LIMITS OF SAID DRAINAGE EASEMENTS AND TO MAKE ANY MODIFICATIONS OR IMPROVEMENTS WITHIN SAID DRAINAGE EASEMENTS.
4. FUTURE DEVELOPMENT IS SUBJECT TO CHAPTER 114 (STREETS, SIDEWALKS AND OTHER PUBLIC SPACES) OF THE BULVERDE CODE OF ORDINANCES.
5. THIS SUBDIVISION IS OVER THE EDWARDS AQUIFER CONTRIBUTING ZONE AS SHOWN ON THE ANHALT U.S.G.S. QUAD MAP.
6. BASIS OF BEARINGS: ALL BEARINGS SHOWN ARE GRID BASED ON GPS OBSERVATIONS TEXAS COORDINATE SYSTEM NA083 SOUTH CENTRAL ZONE. DISTANCES SHOWN HEREON ARE SURFACE. COORINATES SHOWN HEREON ARE GRID. THE PROJECT COMBINED GRID TO SURFACE SCALE FACTOR IS: 1.00015812.
7. PUBLIC UTILITY EASEMENT TO INCLUDE ELECTRIC, WATER, WASTEWATER, CABLE TV AND TELEPHONE.
8. PLAT PREPARATION DATE: SEPTEMBER 17, 2021.
9. THIS SUBDIVISION IS ZONED C3 COMMERCIAL PLANNED DEVELOPMENT DISTRICT.
10. MAINTENANCE OF DRAINAGE EASEMENTS DESIGNATED WITHIN A LOT SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER. NO DEVELOPMENT, BUILDING OR STRUCTURE IS PERMITTED WITHIN A DRAINAGE EASEMENT.
11. WATER SOURCE IS A CERTIFIED PUBLIC WATER SYSTEM. (CLWSC)
12. DRAINAGE EASEMENTS SHALL REMAIN FREE FROM ALL OBSTRUCTION.
13. CONSTRUCTION, INCLUDING SITE WORK, SHALL NOT BEGIN PRIOR TO AN APPROVED PLAT, DRAINAGE PLAN, AND CONSTRUCTION PLANS.
14. VERTICAL DATUM: TXDOT CONTROL MONUMENTS "HUNT", "SH01" AND "20460408" ALL BASED ON NAVD 88 GEOID 03

TXDOT NOTES

1. FOR RESIDENTIAL DEVELOPMENT DIRECTLY ADJACENT TO STATE RIGHT-OF-WAY, THE DEVELOPER SHALL BE RESPONSIBLE FOR ADEQUATE SETBACK AND/OR SOUND ABATEMENT MEASURES FOR FUTURE NOISE MITIGATION.
2. OWNER/DEVELOPER IS RESPONSIBLE FOR PREVENTING ANY ADVERSE IMPACT TO THE EXISTING DRAINAGE SYSTEM WITHIN THE HIGHWAY RIGHT-OF-WAY. FOR PROJECTS IN THE EDWARDS AQUIFER RECHARGE OR CONTRIBUTING ZONES, OUTFALLS FOR WATER QUALITY AND/OR DETENTION PONDS TREATING IMPERVIOUS COVER RELATED TO THE DEVELOPMENT, WILL NOT ENCR OACH BY STRUCTURE OR GRADING INTO STATE ROW. PLACEMENT OF PERMANENT STRUCTURAL BEST MANAGEMENT PRACTICE DEVICES OR VEGETATIVE FILTER STRIPS WITHIN STATE ROW WILL NOT BE ALLOWED.
3. MAXIMUM ACCESS POINTS TO STATE HIGHWAY FROM THIS PROPERTY WILL BE REGULATED AS DIRECTED BY TXDOT'S, "ACCESS MANAGEMENT MANUAL". THE PROPERTY IS ELIGIBLE FOR A MAXIMUM COMBINED TOTAL OF 1 (ONE) RIGHT-IN, RIGHT-OUT ONLY, ACCESS POINT TO SH 46 BASED ON AN APPROXIMATE OVERALL HIGHWAY FRONTAGE OF 515.18 FEET.
4. IF SIDEWALKS ARE REQUIRED BY APPROPRIATE CITY ORDINANCE, A SIDEWALK PERMIT MUST BE APPROVED BY TXDOT, PRIOR TO CONSTRUCTION WITHIN STATE RIGHT-OF-WAY. LOCATIONS OF SIDEWALKS WITHIN STATE RIGHT OF WAY SHALL BE AS DIRECTED BY TXDOT.
5. ANY TRAFFIC CONTROL MEASURES (LEFT-TURN LANE, SIGNAL, ETC.) FOR ANY ACCESS FRONTING A STATE MAINTAINED ROADWAY SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/OWNER.

LEGEND

- FOUND 1/2" IRON ROD
- SET 5/8" IRON ROD WITH A RED "MATKIN-HOOVER ENG & SURVEY" PLASTIC CAP
- ⊗ FOUND TXDOT R.O.W. MONUMENT
- 499 — EXISTING 1' CONTOUR
- 500 — EXISTING 5' CONTOUR
- C — CENTER LINE
- M.P.R.C.C.T. MAP AND PLAT RECORDS COMAL COUNTY TEXAS
- VOL. VOLUME
- PG. PAGE
- R.O.W. RIGHT-OF-WAY
- TXDOT TEXAS DEPARTMENT OF TRANSPORTATION
- D.P.R.C.C.T. DEED AND PLAT RECORDS, COMAL COUNTY TEXAS
- O.P.R.C.C.T. OFFICIAL PUBLIC RECORDS, COMAL COUNTY TEXAS

UTILITY PROVIDERS:

- PEC - (ELECTRIC) PEDERNALES ELECTRIC COOPERATIVE, INC.
- CLWSC - (WATER) CANYON LAKE WATER SERVICE COMPANY
- GVTC - (TELEPHONE) GUADALUPE VALLEY TELEPHONE COOPERATIVE
- SEWER - OSSF

I HEREBY CERTIFY THAT PROPER ENGINEERING CONSIDERATION HAS BEEN GIVEN TO THIS PLAT TO THE MATTERS OF STREETS, LOTS, AND DRAINAGE LAYOUT. TO THE BEST OF MY KNOWLEDGE THIS PLAT COFORMS TO ALL REQUIREMENTS SET FORTH BY LOCAL AGENCIES.

TO CERTIFY WHICH, WITNESS MY HAND AND SEAL AT BULVERDE, COMAL COUNTY, TEXAS, THIS ____ DAY OF _____, 20____.

 JOSHUA J. VALENTA
 REGISTERED PROFESSIONAL ENGINEER
 NO. 114592 STATE OF TEXAS



STATE OF TEXAS §
 COUNTY OF COMAL § KNOW ALL MEN BY THESE PRESENTS

I HEREBY CERTIFY THAT THIS PLAT IS TRUE AND CORRECT AND WAS PREPARED FROM AN ACTUAL SURVEY OF THE PROPERTY MADE UNDER MY SUPERVISION ON THE GROUND

TO CERTIFY WHICH, WITNESS MY HAND AND SEAL AT BULVERDE, COMAL COUNTY, TEXAS, THIS ____ DAY OF _____, 20____.

 KYLE L. PRESSLER
 REGISTERED PROFESSIONAL LAND SURVEYOR
 NO. 6528 STATE OF TEXAS



CITY OF BULVERDE, TEXAS

PREPARED: FEBRUARY, 2024

**SUBDIVISION PLAT ESTABLISHING
 QT 4028 ADDITION**

A 9.74 ACRE TRACT OF LAND, OUT OF THE THEODORE MILLER SURVEY NO. 323, ABSTRACT 384, COMAL COUNTY, TEXAS AND BEING THE REMAINING PORTION OF A CALLED 10.10 ACRE TRACT OF LAND AS DESCRIBED IN DOCUMENT NO. 201506013452 OF THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS.



**ENGINEERING
 & SURVEYING**
 8 SPENCER ROAD SUITE 100
 BOERNE, TEXAS 78006
 P.O. BOX 54
 OFFICE: 830.249.0600 FAX: 830.249.0699
 TEXAS REGISTERED ENGINEERING FIRM F-004512
 CIVIL ENGINEERS SURVEYORS LAND PLANNERS
 CONSTRUCTION MANAGERS CONSULTANTS

STATE OF TEXAS §
 COUNTY OF COMAL § KNOW ALL MEN BY THESE PRESENTS

THE OWNER OF THE LAND SHOWN ON THIS PLAT WHOSE NAMES ARE SUBSCRIBED HERETO AND IN PERSON OR THROUGH A DULY AUTHORIZED AGENT, HEREBY DEDICATE TO THE USE OF PUBLIC FOREVER ALL STREETS, PARKS, WATER COURSES, DRAINS, EASEMENTS, AND PUBLIC PLACES THEREON SHOWN FOR THE PURPOSES AND CONSIDERATIONS THEREIN EXPRESSED.

OWNER
 QT SOUTH, LLC A TEXAS LIMITED LIABILITY COMPANY
 4075 S. 129TH EAST AVE
 TULSA, OKLAHOMA 74134

STATE OF TEXAS §
 COUNTY OF COMAL § KNOW ALL MEN BY THESE PRESENTS

BEFORE ME, THE UNDERSIGNED, AUTHORITY ON THIS DAY PERSONALLY APPEARED _____ KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT OF WRITING, AND ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATIONS THEREIN EXPRESSED AND IN THE CAPACITY THEREIN SATED.

GIVEN UNDER MY HAND AND SEAL OF OFFICE

THIS THE ____ DAY OF _____, 20____.

 NOTARY PUBLIC, STATE OF TEXAS

PRINTED NAME

STATE OF TEXAS
 COUNTY OF COMAL

I, HONORABLE BOBBIE KOEPP, COUNTY CLERK FOR COMAL COUNTY, DO HEREBY CERTIFY THAT THIS PLAT WAS FILED FOR RECORD IN MY OFFICE ON THE

____ DAY OF _____, A.D., 20____, AT _____ M. AND DULY RECORDED THE ____ DAY OF _____, A.D., 20____ AT _____ M. IN THE

RECORDS OF MAPS AND PLATS IN SAID OFFICE, OF SAID COUNTY, IN

DOCUMENT # _____ IN TESTIMONY WHEREOF WITNESS MY HAND AND OFFICIAL SEAL OF OFFICE

THIS ____ DAY OF _____, A.D. 20____.

COUNTY CLERK
 COMAL COUNTY, TEXAS

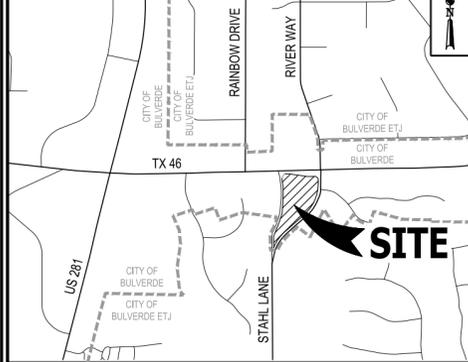
BY: _____
 DEPUTY TO COUNTY CLERK

THIS PLAT OF QT 4028 ADDITION HAS BEEN SUBMITTED TO AND CONSIDERED BY THE CITY PLANNING AND ZONING COMMISSION OF THE CITY OF BULVERDE, TEXAS AND IS HEREBY APPROVED BY SUCH COMMISSION.

DATED THIS ____ DAY OF _____, YEAR _____

BY: _____
 CHAIRPERSON

LOCATION MAP
(NOT TO SCALE)

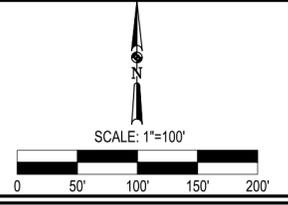


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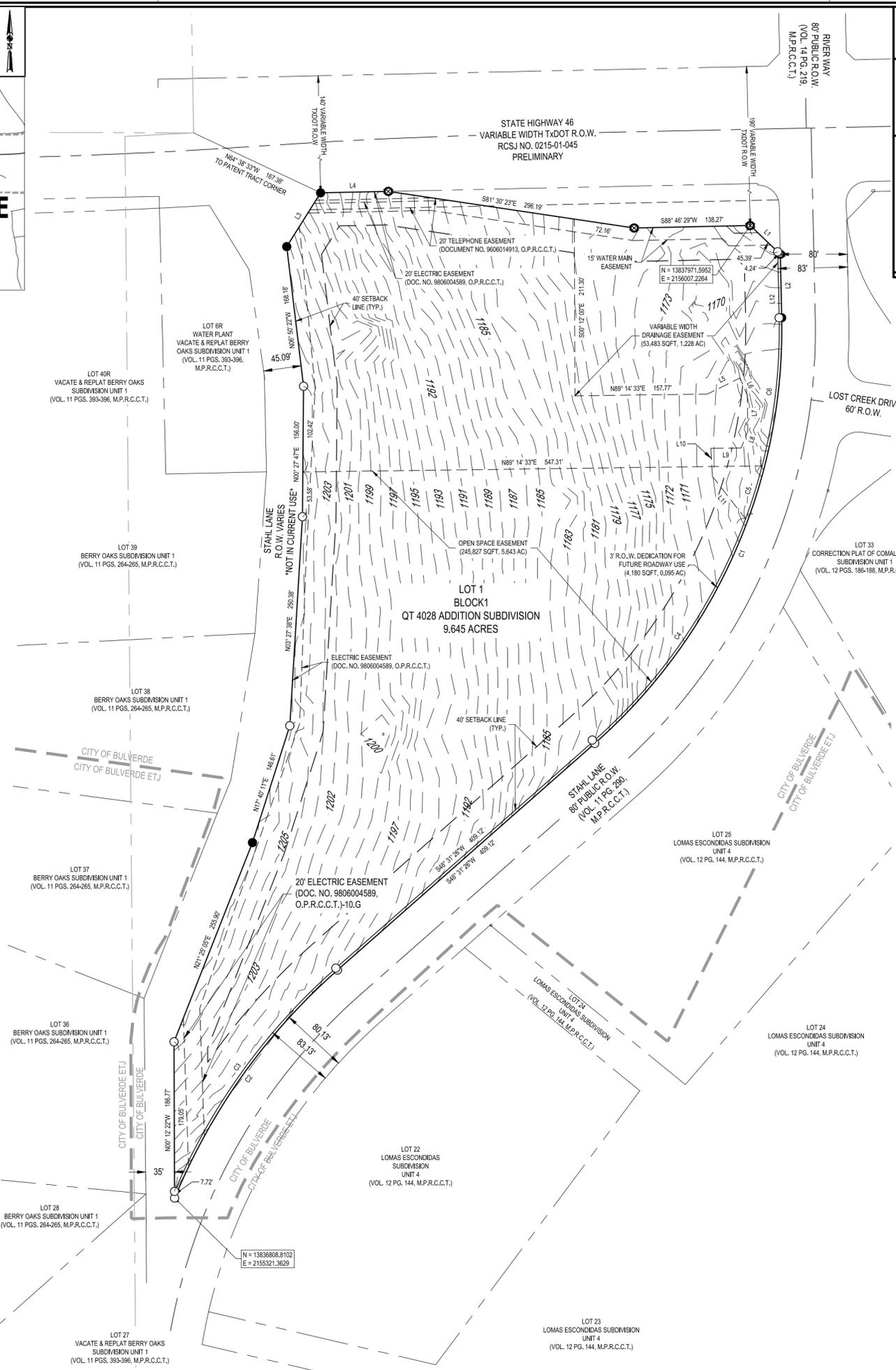
MATKINHOOVER

ENGINEERING & SURVEYING
8 SPENCER ROAD SUITE 100
BOERNE, TEXAS 78006
P.O. BOX 54
OFFICE: 830.249.0600 FAX: 830.249.0609
TEXAS REGISTERED ENGINEERING FIRM F-004512
CIVIL ENGINEERS SURVEYORS LAND PLANNERS
CONSTRUCTION MANAGERS CONSULTANTS



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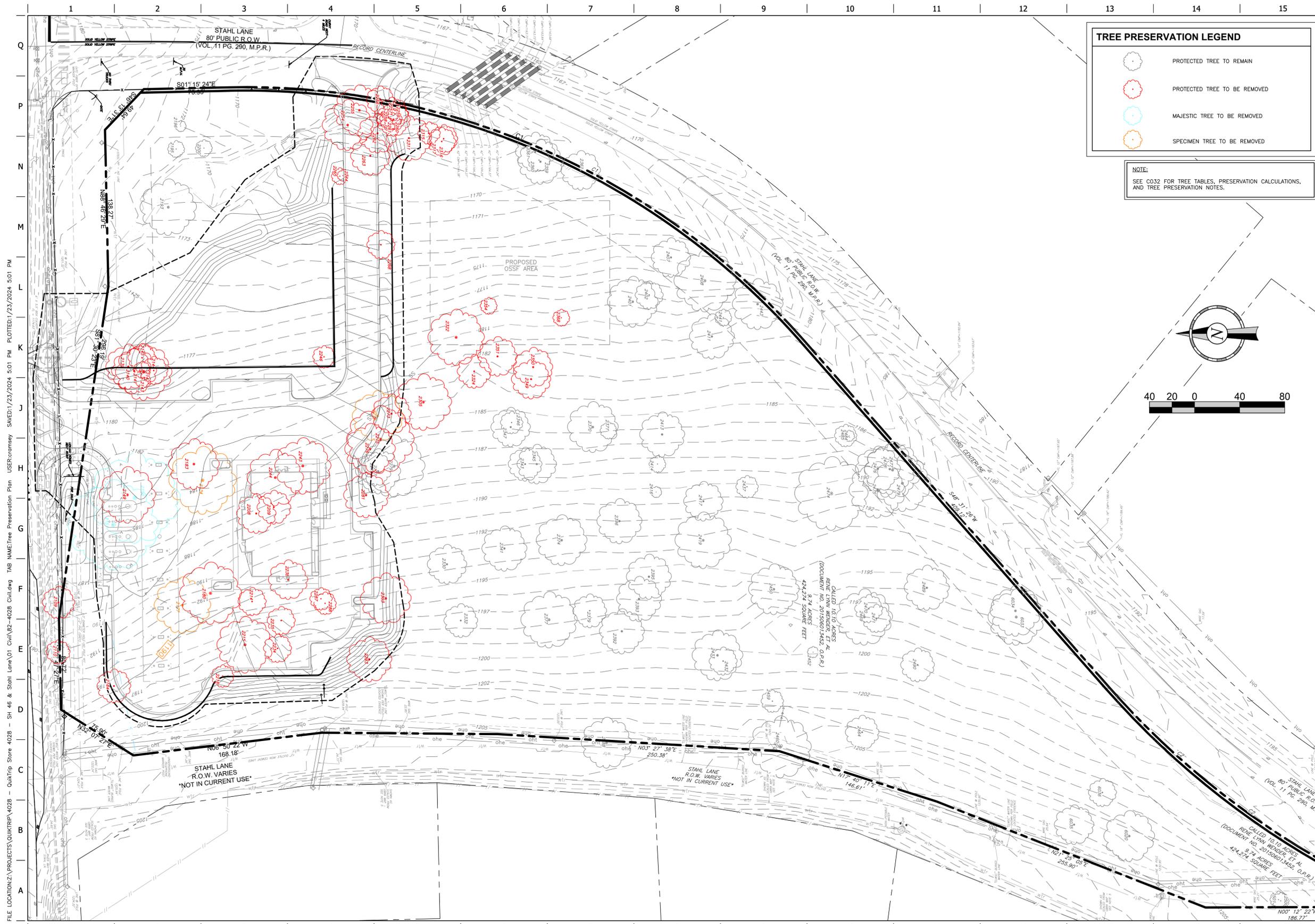


LINE TABLE

LINE	BEARING	DISTANCE
L1	N46° 13' 31"W	49.64'
L2	N01° 15' 24"W	75.93'
L3	N32° 07' 27"E	75.90'
L4	S88° 47' 27"W	80.72'
L5	N63° 42' 22"E	43.40'
L6	S22° 53' 46"E	22.36'
L7	S00° 45' 27"E	43.00'
L8	S21° 23' 39"W	21.60'
L9	S89° 14' 33"W	36.16'
L10	S03° 26' 36"E	33.63'
L11	S37° 52' 46"E	64.32'
L12	S01° 15' 24"E	78.94'

CURVE TABLE

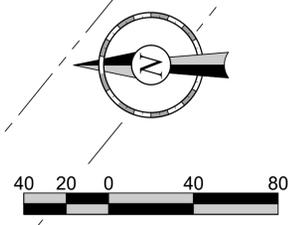
CURVE #	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD DISTANCE
C1	573.43'	660.00'	049°46'49"	N23°38'01"E	555.56'
C2	337.58'	740.00'	026°08'16"	S35°27'19"W	334.66'
C3	331.82'	743.00'	025°35'17"	S35°43'48"W	329.07'
C4	325.62'	657.00'	028°23'48"	N34°19'32"E	322.30'
C5	66.45'	657.00'	005°47'43"	N17°13'47"E	66.42'
C6	178.75'	657.00'	015°35'18"	N06°32'16"E	178.20'



TREE PRESERVATION LEGEND

- PROTECTED TREE TO REMAIN
- PROTECTED TREE TO BE REMOVED
- MAJESTIC TREE TO BE REMOVED
- SPECIMEN TREE TO BE REMOVED

NOTE:
SEE C032 FOR TREE TABLES, PRESERVATION CALCULATIONS, AND TREE PRESERVATION NOTES.



FILE LOCATION: Z:\PROJECTS\QUIKTRIP\4028 - QuikTrip Store 4028 - SH 46 & Stahl Lane\01 C:\N\52-4028 C:\dwg TAB NAME: Tree Preservation Plan USER: cromley SAVED: 1/23/2024 5:01 PM PLOTTED: 1/23/2024 5:01 PM

PROJECT NO.: 4028.01

MATKIN HOOVER
ENGINEERING
& SURVEYING

8 SPENCER ROAD, SUITE 100
BULVERDE, TEXAS 76108
OFFICE: 817.249.0800
CONTACT@MATKINHOOVER.COM
TEXAS REGISTERED ENGINEERING FIRM F-1024000
F-004512 SURVEYING FIRM F-1024000

QuikTrip No. 4028
HWY. 46 & STAHL LANE
BULVERDE, TEXAS

QT

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WHOLE OR IN PART, IS STRICTLY FORBIDDEN.

PROTOTYPE: P-116 (12/01/23)
DIVISION: 82
VERSION: 001
DESIGNED BY: CGW
DRAWN BY: GSC
REVIEWED BY: JJV

REV	DATE	DESCRIPTION

SHEET TITLE:
TREE PRESERVATION PLAN

SHEET NUMBER:
C031
10 OF 67

ORIGINAL ISSUE DATE:

FILE LOCATION: Z:\PROJECTS\QUIKTRIP\4028 - QuikTrip Store 4028 - SH 46 & Stahl Lane\01 Civil\02-4028 Civil.dwg USER: cramsay DATE: 1/19/2024 12:08 PM PLOT: 1/22/2024 10:02 AM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Q														Q
P														P
N														N
M														M
L														L
K														K
J														J
H														H
G														G
F														F
E														E
D														D
C														C
B														B
A														A

TREE MITIGATION CALCULATIONS (BULVERDE)

1. ALL BELOW VALUES ARE IN INCHES UNLESS OTHERWISE NOTED

2. ALL TREES LISTED BELOW FALL UNDER THE DESIGNATION OF PROTECTED OR MAJESTIC TREES PER THE CITY OF BULVERDE TREE ORDINANCE - 17.06.008

3. MITIGATION THRESHOLDS ARE AS FOLLOWS:

- TOTAL TREE REMOVAL FROM SITE - 60%
- MAXIMUM REPLACEMENT TREES OF SAME SPECIES - 35%

PROTECTED TREES (1:1 MITIGATION)
 PRESERVED TREES: 1152 INCHES
 REMOVED TREES: 661 INCHES
 REMOVED TREES THAT DO NOT INCUR MITIGATION: 95
 REQUIRED MITIGATION: 566 INCHES
 MITIGATION PROVIDED: 566 (REF. FEE CALCS BELOW)

SPECIMEN TREES (1:1 MITIGATION)
 REMOVED: 83 INCHES
 PRESERVED: 30 INCHES
 REQUIRED MITIGATION: 83 INCHES
 MITIGATION PROVIDED: 83 INCHES (REF. FEE CALCS BELOW)

MAJESTIC TREES (3:1 MITIGATION)
 REMOVED: 78 INCHES
 PRESERVED: 0 INCHES
 REQUIRED MITIGATION: 228 INCHES
 MITIGATION PROVIDED: 228 INCHES

TOTAL REQUIRED MITIGATION: 877 INCHES

4. 492 INCHES OF PROTECTED AND SPECIMEN TREE MITIGATION SHALL BE PROVIDED VIA PLANTING OF 6" TREES AS DETAILED ON THE LANDSCAPE PLAN.

5. IN LIEU OF REPLANTING 385 INCHES (43.0% OF THE REQUIRED PROTECTED, SPECIMEN, AND MAJESTIC TREE MITIGATION), A \$115,500 PAYMENT (385 INCHES X \$300) MAY BE SERVICED TO THE TREE MITIGATION FUND

TREE PRESERVATION NOTES (BULVERDE)

1. PRIOR TO CONSTRUCTION OR LAND DEVELOPMENT, FOUR-FOOT-HIGH (4') PLASTIC (OR EQUIVALENT) SAFETY FENCING SHALL BE INSTALLED AROUND THE DRIP LINE OF PROTECTED, SPECIMEN, MAJESTIC, HISTORIC, AND REPLACEMENT TREES.

2. THE CLEANING OF EQUIPMENT OR MATERIALS OR THE DISPOSAL OF ANY WASTE MATERIAL, INCLUDING, BUT NOT LIMITED TO, PAINT, OIL, SOLVENTS, ASPHALT, CONCRETE, AND MORTAR IS PROHIBITED UNDER THE CANOPY OR DRIP LINE OF ANY PROTECTED, SPECIMEN, MAJESTIC, HISTORIC, OR REPLACEMENT TREE OR GROUP THEREOF.

3. NO ATTACHMENTS OR WIRES OF ANY KIND, OTHER THAN THOSE OF A PROTECTIVE NATURE, SHALL BE ATTACHED TO ANY TREE.

4. WITH GRADE CHANGES OF SIX INCHES (6") OR GREATER, A RETAINING WALL OR TREE WELL OF ROCK, BRICK, LANDSCAPE TIMBERS, OR OTHER APPROVED MATERIALS SHALL BE CONSTRUCTED AROUND THE TREE NO CLOSER THAN THE DRIP LINE OF THE TREE. THE TOP OF THE RETAINING WALL OR TREE WELL SHALL BE CONSTRUCTED AT THE NEW GRADE.

5. UNLESS OTHERWISE APPROVED BY THE CITY, NO CONSTRUCTION OR CONSTRUCTION RELATED ACTIVITY SHALL OCCUR UNDER THE DRIP LINE OF ANY PROTECTED, SPECIMEN, MAJESTIC, HISTORIC TREE, OR REPLACEMENT TREE OR GROUP THEREOF. FURTHERMORE, IF A FOUNDATION, STREET OR ALLEY PAVEMENT, UTILITY LINE, ON-SITE SEWERAGE FACILITY, POOL, TENNIS COURT, PATIO, SIDEWALK, DRIVE, OR PARKING LOT MUST BE CONSTRUCTED WITHIN THE DRIP LINE OF SAID TREES, IT SHALL BE CONSTRUCTED UNDER THE SUPERVISION OF A CERTIFIED ARBORIST, NO CLOSER THAN FIVE FEET (5') FROM THE TRUNK OF SUCH TREES PROVIDED FURTHER THAT THE PORTION OF ANY DRIVEWAY OR PARKING LOT CONSTRUCTED WITHIN THE DRIP LINE OF ANY PROTECTED, SPECIMEN, MAJESTIC, HISTORIC, OR REPLACEMENT TREE OR GROUP THEREOF SHALL BE CONSTRUCTED OF PERVIOUS MATERIALS, SUCH AS PERVIOUS PAVESTONE OR ECOCRETE, APPROVED BY THE DIRECTOR.

6. ANY TREES REMOVED DURING LAND DEVELOPMENT, CONSTRUCTION, OR CONSTRUCTION-RELATED ACTIVITIES SHALL BE CHIPPED OR HAULED OFF SITE.

7. THE LOCATION OF ALL PROPOSED BUILDINGS AND IMPROVEMENTS SHALL BE ORIENTED TO ALLOW FOR THE MAXIMUM PRESERVATION OF PROTECTED, SPECIMEN, MAJESTIC AND HISTORIC TREES.

8. SITE PLANS SHALL, TO THE EXTENT PRACTICABLE, ACCOMMODATE EXISTING TREES BY PROVIDING ISLANDS IN PARKING LOTS AND GRADING AND LANDSCAPING SURROUNDING STRUCTURES.

SPECIMEN TREE TABLE

POINT NUMBER	SPECIES	TRUNK DIA (IN)
2177	LIVE OAK	25
2272	LIVE OAK	27
2184	LIVE OAK	31
2474	LIVE OAK	30

TREE TABLE NOTES:

ALL TREES LISTED ABOVE FALL UNDER THE DESIGNATION OF SPECIMEN TREES PER THE CITY OF BULVERDE TREE ORDINANCE - SEC. 17.06.008

1. TREES TO BE REMOVED ARE SHOWN HATCHED IN THE TREE LIST.

MAJESTIC TREE TABLE

POINT NUMBER	SPECIES	TRUNK DIA (IN)
2150	LIVE OAK	38
2151	LIVE OAK	38

TREE TABLE NOTES:

ALL TREES LISTED ABOVE FALL UNDER THE DESIGNATION OF MAJESTIC TREES PER THE CITY OF BULVERDE TREE ORDINANCE - SEC. 17.06.008

1. TREES TO BE REMOVED ARE SHOWN HATCHED IN THE TREE LIST.

PROTECTED TREE TABLE

POINT NUMBER	SPECIES	TRUNK DIA (IN)
2109	LIVE OAK	11.5
2110	LIVE OAK	8.5
2139	LIVE OAK	17
2140	LIVE OAK	15
2141	LIVE OAK	8
2142	LIVE OAK	17
2143	LIVE OAK	8.5
2144	LIVE OAK	10.5
2145	LIVE OAK	10.5
2149	LIVE OAK	22
2164	LIVE OAK	12
2180	LIVE OAK	21
2183	LIVE OAK	19.5
2193	LIVE OAK	21
2195	AMERICAN ELM	7
2196	AMERICAN ELM	7
2200	LIVE OAK	8
2208	LIVE OAK	18
2209	LIVE OAK	16
2214	LIVE OAK	11
2215	LIVE OAK	24
2218	LIVE OAK	14
2234	LIVE OAK	12.5
2235	LIVE OAK	16.5
2238	LIVE OAK	18
2243	LIVE OAK	22
2244	LIVE OAK	21
2246	LIVE OAK	8.5
2254	LIVE OAK	21
2255	LIVE OAK	18
2256	LIVE OAK	18
2257	AMERICAN ELM	17
2258	AMERICAN ELM	10
2259	AMERICAN ELM	7
2260	AMERICAN ELM	18
2261	AMERICAN ELM	9
2262	LIVE OAK	12.5
2263	LIVE OAK	14
2264	LIVE OAK	6
2265	LIVE OAK	8
2268	LIVE OAK	12.5
2273	LIVE OAK	14.5
2275	LIVE OAK	24
2276	LIVE OAK	21
2277	LIVE OAK	16
2278	LIVE OAK	14
2279	LIVE OAK	22
2281	LIVE OAK	18
2287	LIVE OAK	10
2288	LIVE OAK	12
2293	LIVE OAK	16.5
2303	LIVE OAK	16
2305	LIVE OAK	12
2311	LIVE OAK	14.5
2315	AMERICAN ELM	12
2316	LIVE OAK	13
2317	LIVE OAK	11

POINT NUMBER	SPECIES	TRUNK DIA (IN)
2322	LIVE OAK	22
2324	LIVE OAK	13
2330	LIVE OAK	12
2332	LIVE OAK	17
2341	LIVE OAK	12
2343	LIVE OAK	16
2345	LIVE OAK	16
2346	LIVE OAK	12
2347	LIVE OAK	14
2349	LIVE OAK	15
2350	LIVE OAK	16
2351	LIVE OAK	17
2354	LIVE OAK	8
2359	LIVE OAK	21
2360	AMERICAN ELM	11
2361	LIVE OAK	13
2362	LIVE OAK	13
2368	LIVE OAK	8.5
2370	LIVE OAK	16.5
2371	LIVE OAK	8.5
2374	LIVE OAK	21
2377	LIVE OAK	22
2379	LIVE OAK	14
2388	LIVE OAK	10
2392	LIVE OAK	16
2393	LIVE OAK	16
2395	LIVE OAK	16.5
2396	LIVE OAK	16.5
2401	LIVE OAK	15
2402	LIVE OAK	10
2407	LIVE OAK	14
2408	LIVE OAK	19
2411	LIVE OAK	17
2413	LIVE OAK	16
2414	LIVE OAK	7.5
2416	LIVE OAK	6
2417	LIVE OAK	16
2419	LIVE OAK	18
2432	LIVE OAK	12
2433	LIVE OAK	16
2437	LIVE OAK	10
2441	LIVE OAK	9
2443	LIVE OAK	16.5
2450	LIVE OAK	17
2452	LIVE OAK	7.5
2459	LIVE OAK	9.5
2460	LIVE OAK	18.5
2464	LIVE OAK	22
2469	LIVE OAK	20.5
2470	LIVE OAK	10.5
2471	LIVE OAK	13
2475	LIVE OAK	24
2476	LIVE OAK	17
2477	LIVE OAK	19
2478	LIVE OAK	17
2479	LIVE OAK	21
2484	LIVE OAK	7
2485	LIVE OAK	13
2489	LIVE OAK	16
2490	LIVE OAK	13
2500	LIVE OAK	10
2501	LIVE OAK	10
6020	LIVE OAK	22
6033	LIVE OAK	23
6034	LIVE OAK	19
6035	LIVE OAK	16
6036	LIVE OAK	9

** - INDICATES REMOVED TREES THAT FALL WITHIN THE BUILDING FOOTPRINT.

TREE TABLE NOTES:

ALL TREES LISTED ABOVE FALL UNDER THE DESIGNATION OF PROTECTED TREES PER THE CITY OF BULVERDE TREE ORDINANCE - SEC. 17.06.008

1. TREES TO BE REMOVED ARE SHOWN HATCHED IN THE TREE LIST.

2. TREES THAT FALL WITHIN THE BUILDING FOOTPRINT DO NOT NEED TO BE MITIGATED FOR.

PROJECT NO.: 4028.01

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PROTOTYPE: P-116 (12/01/23)
 DIVISION: 82
 VERSION: 001
 DESIGNED BY: CGW
 DRAWN BY: GSC
 REVIEWED BY: JJV

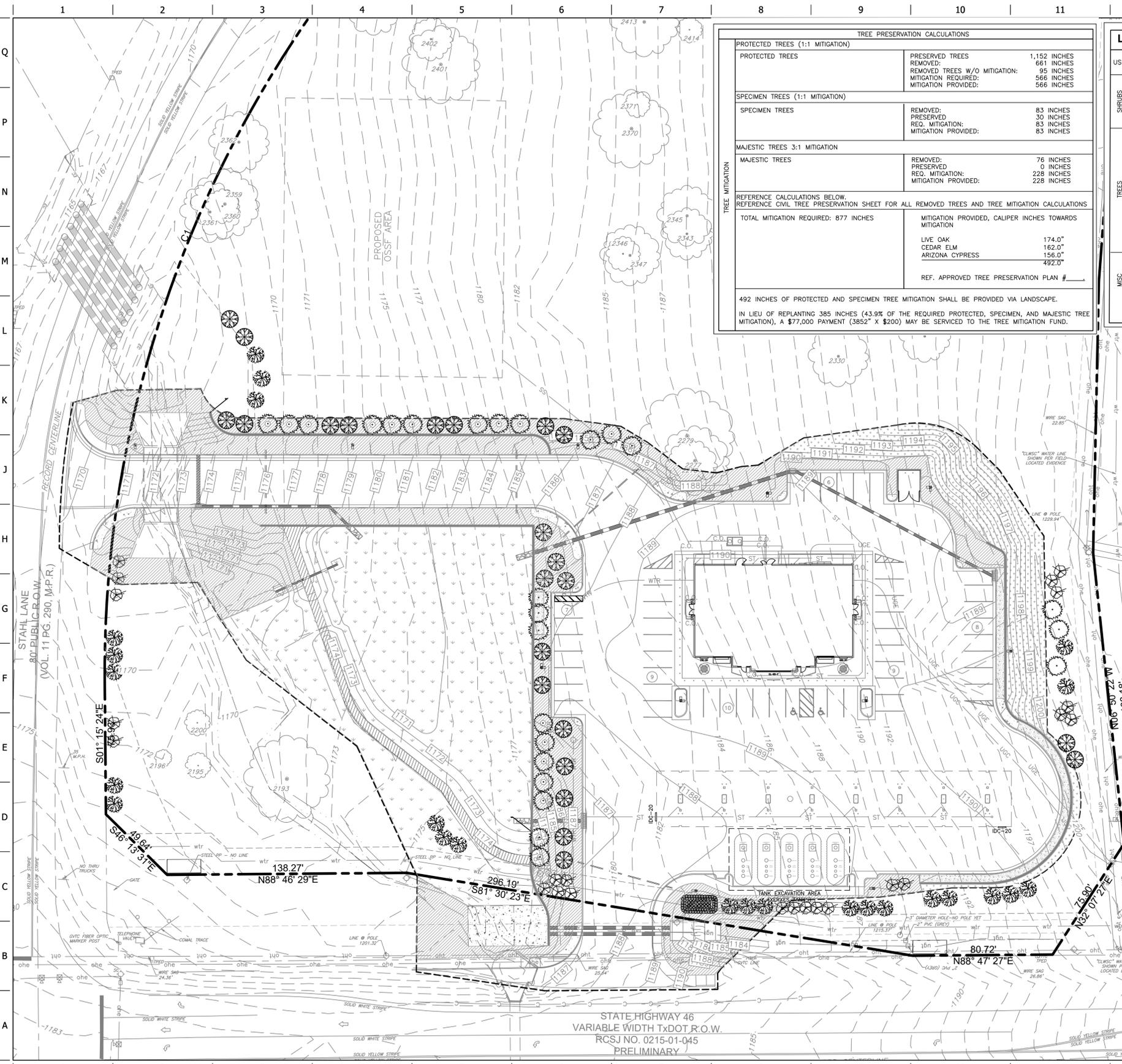
REV	DATE	DESCRIPTION

SHEET TITLE:
 TREE PRESERVATION
 TABLES

SHEET NUMBER:
C032
 11 OF 67

ORIGINAL ISSUE DATE:

FILE LOCATION: C:\Users\joray\Documents\DBA\PROJECTS\2021\MATKIN_HOOVER\QT_4028 - Bulverde, TX\65-4028 Landscape_2022-01-14.dwg TAB NAME: Landscape_2022-01-14.dwg USER: joray DATE: 1/14/2022 11:59 AM PLOTTED: 1/14/2022 12:00 PM



TREE PRESERVATION CALCULATIONS		
PROTECTED TREES (1:1 MITIGATION)		
PROTECTED TREES	PRESERVED TREES	1,152 INCHES
	REMOVED:	661 INCHES
	REMOVED TREES W/O MITIGATION:	95 INCHES
	MITIGATION REQUIRED:	566 INCHES
	MITIGATION PROVIDED:	566 INCHES
SPECIMEN TREES (1:1 MITIGATION)		
SPECIMEN TREES	REMOVED:	83 INCHES
	PRESERVED:	30 INCHES
	REQ. MITIGATION:	83 INCHES
	MITIGATION PROVIDED:	83 INCHES
MAJESTIC TREES 3:1 MITIGATION		
MAJESTIC TREES	REMOVED:	76 INCHES
	PRESERVED:	0 INCHES
	REQ. MITIGATION:	228 INCHES
	MITIGATION PROVIDED:	228 INCHES
REFERENCE CALCULATIONS BELOW. REFERENCE CIVIL TREE PRESERVATION SHEET FOR ALL REMOVED TREES AND TREE MITIGATION CALCULATIONS		
TOTAL MITIGATION REQUIRED: 877 INCHES	MITIGATION PROVIDED, CALIPER INCHES TOWARDS MITIGATION	
	LIVE OAK	174.0"
	CEDAR ELM	162.0"
	ARIZONA CYPRESS	156.0"
		492.0"
	REF. APPROVED TREE PRESERVATION PLAN #	
492 INCHES OF PROTECTED AND SPECIMEN TREE MITIGATION SHALL BE PROVIDED VIA LANDSCAPE.		
IN LIEU OF REPLANTING 385 INCHES (43.9% OF THE REQUIRED PROTECTED, SPECIMEN, AND MAJESTIC TREE MITIGATION), A \$77,000 PAYMENT (3852" X \$200) MAY BE SERVICED TO THE TREE MITIGATION FUND.		

Landscape Schedule					
USE	SYMBOL	COMMON NAME <i>Botanical Name</i>	MINIMUM SIZE/ HEIGHT/SPREAD	QUANTITIES	COMMENTS
SHRUBS	○	CRIMSON PIGMY BARBERRY <i>Barberis thun. 'Crimson Pigma'</i>	HEIGHT/SPREAD RATIO = 3:2 10'HT X 15" MIN	64	SEE LANDSCAPE PLAN AND ASSOCIATED DETAILS FOR LANDSCAPE BED LOCATIONS AND SHRUB SPACING
	○	NEEDLE POINT HOLLY <i>Ilex cornuta 'Needle Point'</i>	HEIGHT/SPREAD RATIO = 3:2 16" HT X 24" MIN	14	
TREES	⊗	CRAPE MYRTLE <i>Lagerstroemia indica</i>	3" CALIPER (TOTAL) 8"-10' HT	18	SEE LANDSCAPE PLAN AND ASSOCIATED DETAILS FOR TREE PLACEMENT, AND PLANTING SPECIFICATIONS
	⊗	LIVE OAK <i>Quercus virginiana</i>	8" CALIPER +18' HT	29 (35%)	CONTRACTOR TO VERIFY TREE TYPE, LOCATION, SIZE, HEIGHT, AND SPREAD WITH QT REPRESENTATIVE PRIOR TO INSTALLATION
	⊗	DEODAR CEDAR <i>Cedrus deodara</i>	8" CALIPER +18' HT	27 (33%)	
	⊗	ARIZONA CYPRESS <i>Cupressocyparis arizonica</i>	8" CALIPER 16"-18' HT	26 (32%)	
MISC	TIF-BERMUDA	SOD	23,575 S.F.	SEED MIXES AVAILABLE THROUGH NATIVE AMERICAN SEED. 1-800-728-4043 EMAIL: INFO@SEEDSOURCE.COM	
		DAM SLOPE MIX	HYDROSEED	23,818 S.F.	
		CALICHE MIX	HYDROSEED	6,437 S.F.	
		WASHED GRANITE GRAVEL, 1" MINUS SIZE, 3" DEEP, PLACED OVER PERMEABLE WEED BARRIER FABRIC		6,437 S.F.	

LANDSCAPE REQUIREMENTS		
	REQUIRED ORDINANCE	PROVIDED
STREET LANDSCAPE BUFFER	A MIN. 10' WIDE LANDSCAPE BUFFER SHALL BE PROVIDED ON PRIVATE PROPERTY EXCLUSIVE OF ANY ADJACENT R.O.W. AND ADJACENT PARKING AREAS. A MIN. OF ONE (1) CANOPY TREE AND ONE (1) ORNAMENTAL TREE SHALL BE PROVIDED FOR EACH 50 LINEAL FT OF STREET FRONTAGE.	
	±588 L.F. 588 / 50 = 12 CANOPY TREES & 12 ORNAMENTAL TREES	HWY 46 CANOPY TREES 12 LIVE OAK ORNAMENTAL TREES 12 CREPE MYRTLE
TREE PRESERVATION	±240 L.F. 240 / 50 = 5 CANOPY TREES & 5 ORNAMENTAL TREES	STAHL LANE (EAST) CANOPY TREES 15 LIVE OAK ORNAMENTAL TREES 0
	SEE CIVIL PLANS FOR TREE SURVEY, TREE PRESERVATION PLAN, AND TREE TABLE.	
GENERAL TREE REQUIREMENTS	TOTAL TREE REMOVAL FROM SITE CANNOT EXCEED 60% OF THE TOTAL CALIPER WIDTH OF PROTECTED, SPECIMEN, MAJESTIC, OR HISTORIC TREES ON THE SITE.	PROVIDED
	NO MORE THAN 35% OF THE TOTAL REPLACEMENT TREES MAY BE OF THE SAME SPECIES.	PROVIDED
	AT LEAST 50% OF THE REPLACEMENT TREES SHALL EXCEED 6" CALIPER	PROVIDED
	NO REPLACEMENT TREES SHALL BE PLANTED IN UTILITY EASEMENTS.	PROVIDED
	MINIMUM SIZES AT TIME OF PLANTING: CANOPY TREES: 3" CALIPER, 12'-15' HIGH ORNAMENTAL TREES: 8"-10" HIGH REPLACEMENT TREES FOR TREE MITIGATION: 4" CALIPER, 9' HIGH	PROVIDED
	NON-PERMEABLE PAVEMENT MAY NOT BE LOCATED WITHIN 5' OF THE TRUNK OF A TREE. IF PAVEMENT MUST BE LOCATED WITHIN 5' OF A TREE TRUNK, A ROOT BARRIER CONSTRUCTED OF RIGID MATERIAL MUST BE INSTALLED.	PROVIDED

PROJECT NO.: 4028.01

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QuikTrip No. 4028

HWY. 46 & STAHL LANE
BULVERDE, TX 78154

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PROTOTYPE: P-102 (05/01/20)
DIVISION:
VERSION: 001
DESIGNED BY: JJV
DRAWN BY: GSC
REVIEWED BY: JJV

REV	DATE	DESCRIPTION

SHEET TITLE:
82-4028 CIVIL - LANDSCAPE PLAN

SHEET NUMBER:
L100

ORIGINAL ISSUE DATE:

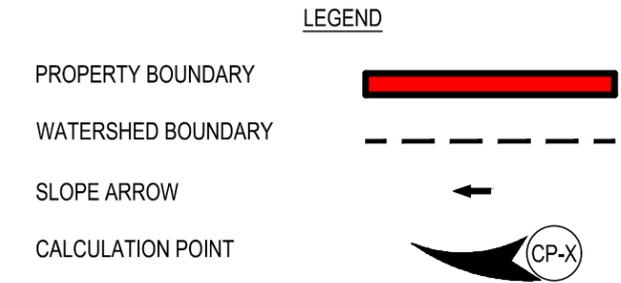
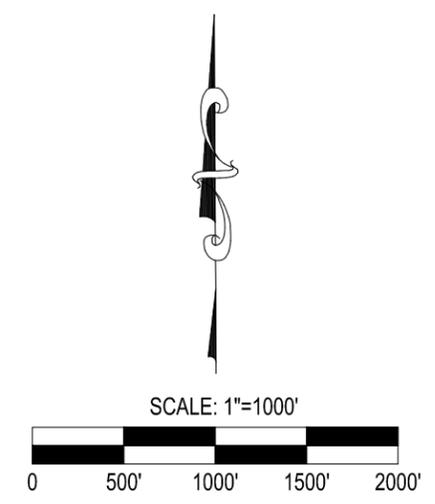
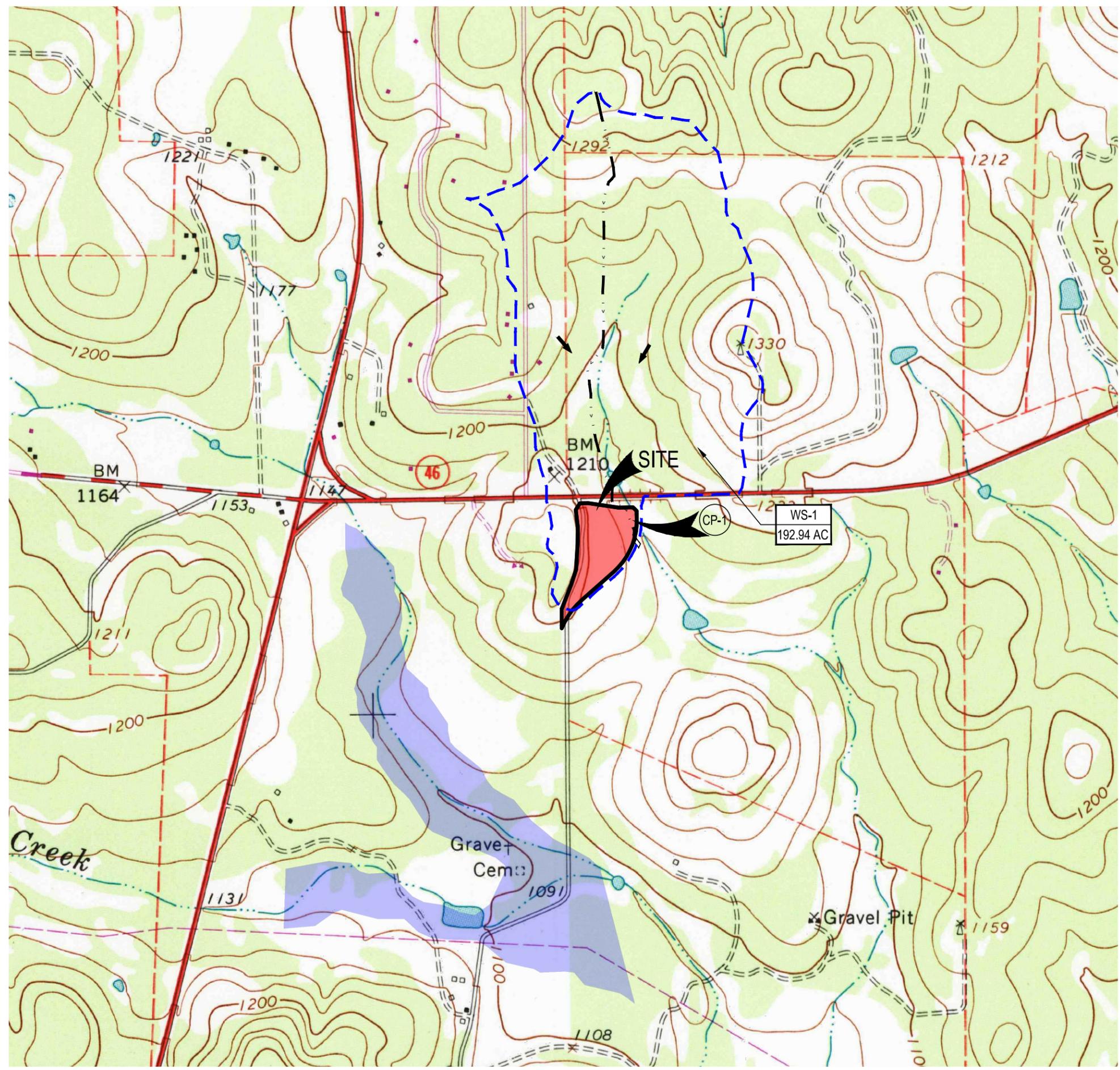
Appendix A

Figure 2.0

U.S.G.S. Map

Date: Nov 03, 2021, 3:47pm User: D:\rmasala

Z:\PROJECTS\KTRP4028 - Oak Top Site 4028 - SH 46 & Steel Lane\Drawings\Exhibit 00 - U.S.G.S WATERSHED EXHIBIT.dwg



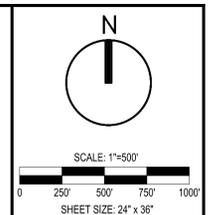
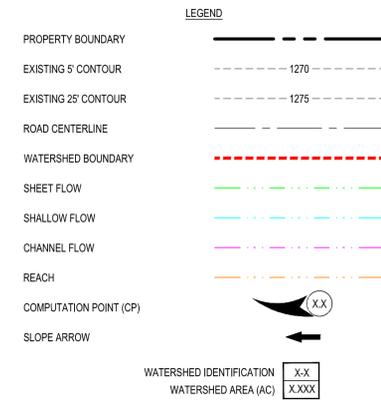
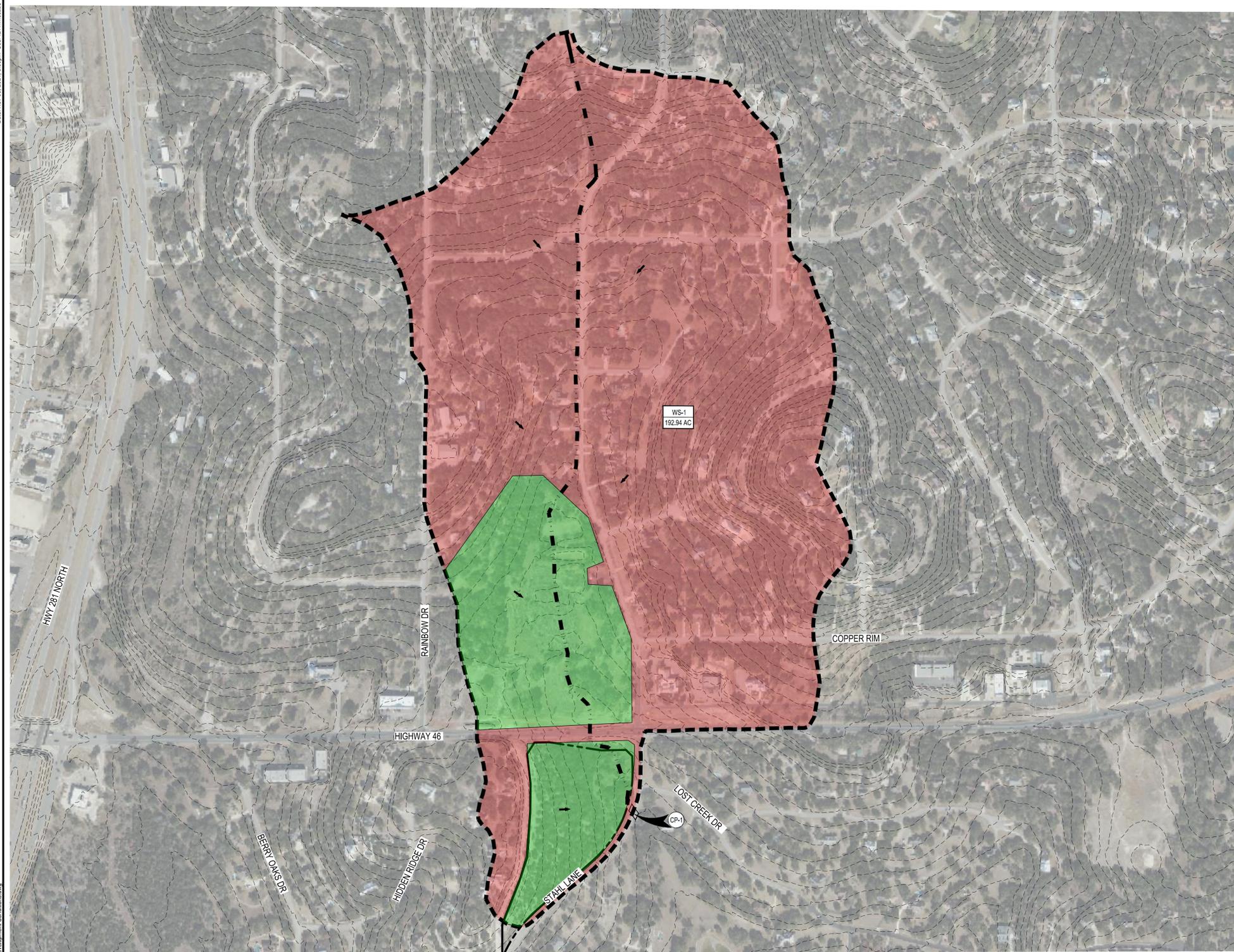
Rev.
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 CIVIL ENGINEERS SURVEYORS LAND PLANNERS CONSTRUCTION MANAGERS CONSULTANTS

U.S.G.S WATERSHED MAP
 FOR
QT # 4028
 BULVERDE, TEXAS

JOB NO.	4028.01
DATE	OCT. 2021
DESIGNED	TMJ
CHECKED	JJV
FIGURE	2.0

Figure 3.0
Predevelopment On-Site Conditions

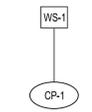


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REVISIONS:

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) STATEMENT: NO PORTION OF THIS TRACT OF LAND FALLS WITHIN A SPECIAL FLOOD HAZARD AREA AS DETERMINED BY THE FEMA NATIONAL FLOOD INSURANCE PROGRAM. A PORTION OF THIS PROPERTY LIES WITHIN ZONE A, DEFINED AS "NO BASE FLOOD ELEVATIONS DETERMINED" & ZONE X, "AREAS OF 0.2% ANNUAL CHANCE FLOOD..." PER FIRM PANEL 48091C0220F, EFFECTIVE DATE SEPTEMBER 2, 2009.

PRE-DEVELOPMENT OVERALL WATERSHED MODEL



- KEY NOTES**
- WATERSHED / SUB-BASIN
 - SUB-BASIN COMPUTATION POINT
 - COMPUTATION POINT
 - DETENTION

- CURVE NUMBER CHART**
- 1. RESIDENTIAL
 - 2. BRUSH

IMPERVIOUS COVER (IC)

EX ONSITE IC: 0.0 SF
PR ONSITE IC: 96,160 SF
% INCREASE : 22.7%

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PRE-DEVELOPMENT CONDITIONS
FOR
QT 4028
BULVERDE, TX

EXHIBIT "3.0"

JOB NO. 4028.00
DESIGNED BY: MR
DRAWN BY: TMJ
CHECKED BY: JJV

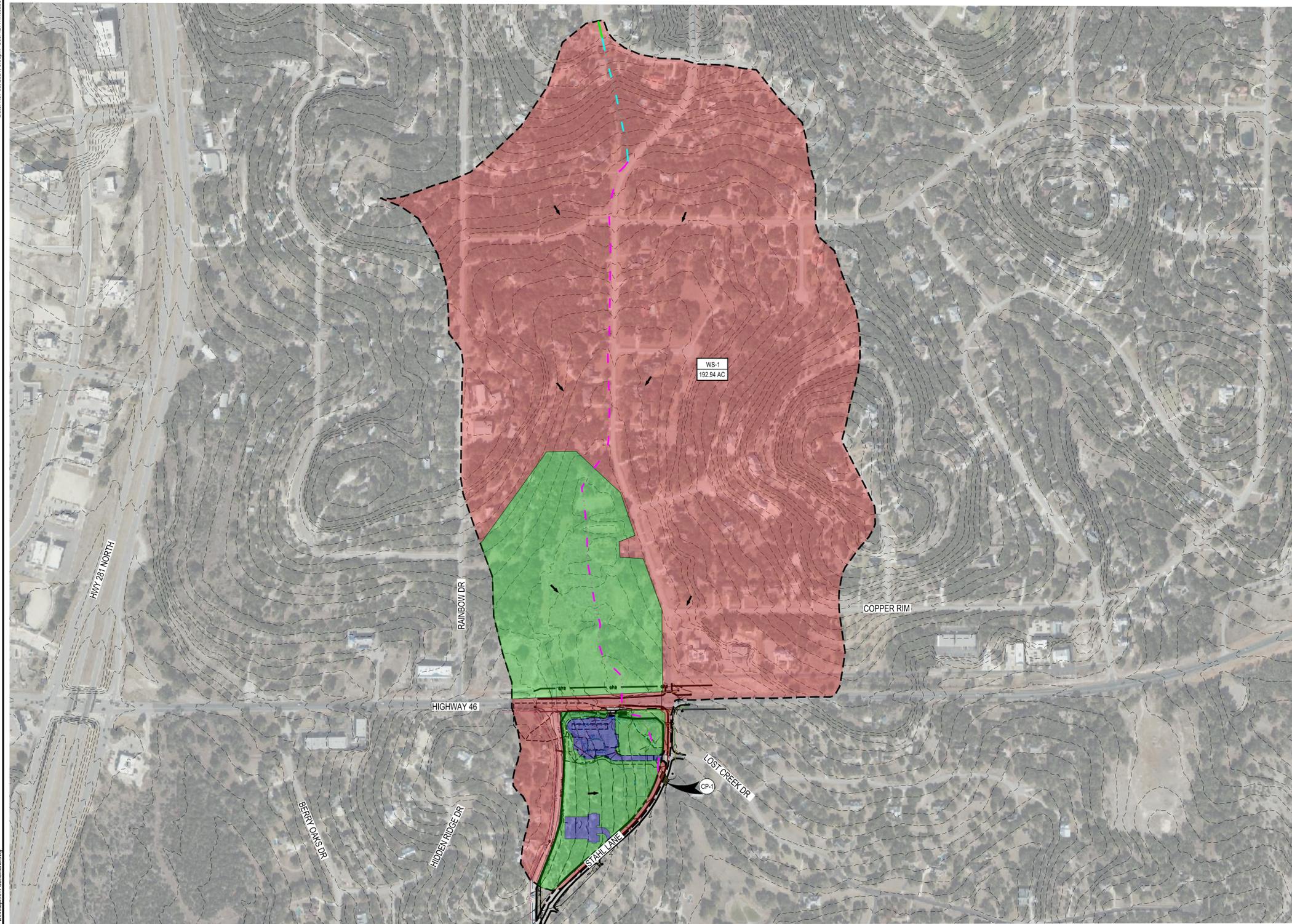
PRE-DEVELOPMENT WATERSHED 'WS-1' COMPOSITE CURVE NUMBER

Watershed Area (acres):	192.941						WS Composite CN:	80.4		
Curve Number (CN) / Soil Group (SG) (%)	A	(%)	B	(%)	C	(%)	D	(%)	Composite CN	CN Classification
	46	0.0	65	0.0	77	0.0	82	100.0	82.0	Residential: 2 acres (12% Imp.)
Classification Composite CN	30	0.0	48	0.0	65	0.0	73	100.0	73.0	Brush: weed-grass, major element brush, Good

EXISTING CONDITIONS - DRAINAGE ANALYSIS CALCULATIONS (SCS Method) - City of Bulverde, Texas

COMP. POINT	WATERSHEDS CONTRIBUTING AREAS	AREA ACREAGE (Ac.)	n	OVERLAND FLOW			SHALLOW CONCENTRATED FLOW				CHANNEL				LAG TIME		Peak Flow; Q (c.f.s.) PER FREQUENCY STORM					
				L (ft)	s (%)	Tsh (min)	PAVED (Y/N)	L (ft)	s (%)	vel. (ft/s)	Tsc (min)	L (ft)	s (%)	vel. (ft/s)	Tch (min)	TC (Min)	Tlag (Min)	2	5	10	25	100
CP-1	WS-1	192.941	0.150	100	2.8%	8.1	N	725	9.2%	5.1	2.5	3723	2.6%	6.7	9.2	20	12.0	345.9	533.5	722.7	1017.1	1568.1

Figure 4.0
Post-Development On-Site Conditions



LEGEND

- PROPERTY BOUNDARY
- EXISTING 5' CONTOUR
- EXISTING 25' CONTOUR
- ROAD CENTERLINE
- WATERSHED BOUNDARY
- SHEET FLOW
- SHALLOW FLOW
- CHANNEL FLOW
- COMPUTATION POINT (CP)
- SLOPE ARROW
- WATERSHED IDENTIFICATION
- WATERSHED AREA (AC)

N

SCALE: 1"=500'

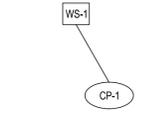
SHEET SIZE: 24" x 36"

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REVISIONS:

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) STATEMENT: NO PORTION OF THIS TRACT OF LAND FALLS WITHIN A SPECIAL FLOOD HAZARD AREA AS DETERMINED BY THE FEMA NATIONAL FLOOD INSURANCE PROGRAM. A PORTION OF THIS PROPERTY LIES WITHIN ZONE A, DEFINED AS "NO BASE FLOOD ELEVATIONS DETERMINED" & ZONE X, "AREAS OF 0.2% ANNUAL CHANCE FLOOD..." PER FIRM PANEL 48091C0220F, EFFECTIVE DATE SEPTEMBER 2, 2009.

POST-DEVELOPMENT OVERALL WATERSHED MODEL



- KEY NOTES**
- WATERSHED / SUB-BASIN
 - SUB-BASIN COMPUTATION POINT
 - COMPUTATION POINT
 - DETENTION

CURVE NUMBER CHART

- 1. RESIDENTIAL
- 2. BRUSH
- 3. IMPERVIOUS

IMPERVIOUS COVER (IC)

EX ONSITE IC: 0.0 SF
 PR ONSITE IC: 96,160 SF
 % INCREASE : 22.7%

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POST-DEVELOPMENT CONDITIONS FOR QT 4028 BULVERDE, TX

POST-DEVELOPMENT WATERSHED 'WS-1' COMPOSITE CURVE NUMBER										
Watershed Area (acres):		192.941				WS Composite CN:				80.6
Curve Number (CN) / Soil Group (SG) (%)	A	(%)	B	(%)	C	(%)	D	(%)	Composite CN	CN Classification
	46	0.0	65	0.0	77	0.0	82	100.0	82.0	Residential: 2 acres (12% Imp.)
	30	0.0	48	0.0	65	0.0	73	100.0	73.0	Brush: weed-grass, major element brush, Good
Classification Composite CN	98	0.0	98	0.0	98	0.0	98	100.0	98.0	Imp: Paved (inc. r.o.w.)

PROPOSED CONDITIONS - DRAINAGE ANALYSIS CALCULATIONS (SCS Method) - City of Bulverde, Texas																					
Governing References:	Manning's: Table 4-2	24-hr P2= 3.60	Travel Time: eq. 3-3 100' L.F. Max.	Average Velocity: Figure 3-1	Travel Time: eq. 4-1	Travel Time: eq. 4-8	eq. 4-3: eq. 4-4: 15c + 1.0h	eq. 4-9: Inlg = 0.61c	DESIGN STORM ANALYSIS METHODOLOGY												
									SCS Method for drainage areas with detention; Flow rates calculated using Hydrflow Hydrograph 2019 software												
WATERSHEDS		OVERLAND FLOW			SHALLOW CONCENTRATED FLOW			CHANNEL			LAG TIME			Peak Flow; Q (c.f.s.) PER FREQUENCY STORM							
COMP. POINT	CONTRIBUTING AREAS (Ac.)	n	L (ft)	s (%)	Tsh (min)	PAVED (Y/N)	L (ft)	s (%)	vel. (ft/s)	Tsc (min)	L (ft)	s (%)	vel. (ft/s)	Tch (min)	TC (Min)	Tlag (Min)	2	5	10	25	100
CP-1	WS-1	0.150	100	2.8%	8.1	N	725	9.2%	5.1	2.5	3723	2.6%	6.7	9.2	20	12.0	348.5	536.5	725.8	1020.3	1571.1

EXHIBIT "4.0"

JOB NO. 4028.00
 DESIGNED BY: MR
 DRAWN BY: TMJ
 CHECKED BY: JJV