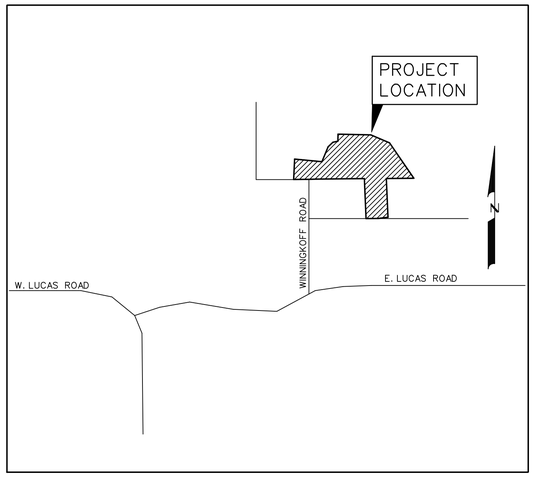
BARRATT LAKE ESTATES 20013

DEVELOPMENT PLANS
FOR
BARRATT LAKE ESTATES
LUCAS, TEXAS



LOCATION MAP

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PREPARED FOR

BARRATT LAKES ESTATE, LLC.

P.O. BOX 863264
PLANO, TEXAS 75086

CORWIN ENGINEERING, INC. — CONSULTING ENGINEERS

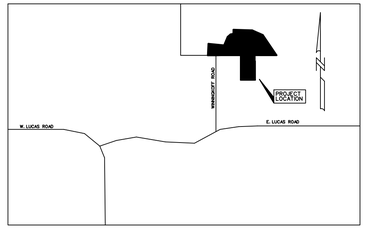
200 W. BELMONT, SUITE E — TBPE FIRM #5951 — ALLEN, TEXAS 75013

STATE OF TEXAS
BRANDON DAVIDSON
87682
REGISTERED PROFESSIONAL ENGINEER
02/06/2023

AS-BUILT FEBRUARY 2023
INFORMATION PROVIDED BY CONTRACTORS AND DEVELOPER (NOT FIELD VERIFIED)

NO.	REVISIONS	DATE

OCTOBER 2022



VICINITY MAP
Scale: NTS

CURVE TABLE

CURVE NO.	DELTA	RADIUS	LENGTH	CHORD	BEARING
C1.	86°58'03"	42.00'	63.75'	57.80'	N46°04'37"E
C2.	37°37'21"	112.00'	73.54'	72.23'	S71°37'41"E
C3.	38°34'01"	112.00'	75.39'	73.97'	S72°06'01"E
C4.	49°46'50"	55.00'	47.79'	46.30'	N63°43'33"E
C5.	00°47'09"	2988.00'	40.99'	40.99'	N89°00'33"E
C6.	89°22'23"	125.00'	194.98'	175.81'	N44°42'56"E
C7.	25°50'08"	255.00'	114.98'	114.01'	N12°53'20"W
C8.	49°14'56"	60.00'	325.42'	50.00'	N64°11'41"E
C9.	266°44'11"	60.00'	279.33'	87.23'	N24°01'13"W
C10.	57°14'22"	250.00'	249.75'	239.50'	N27°14'09"E

LINE TABLE

LINE NO.	BEARING	DISTANCE
1.	N 38°50'08" E	38.62'
2.	N 02°35'36" E	46.40'
3.	N 00°35'53" W	14.71'
4.	N 36°17'06" E	13.56'
5.	N 68°12'33" E	15.96'
6.	N 83°24'48" E	11.67'
7.	N 54°37'06" E	33.91'
8.	N 24°35'03" E	20.36'
9.	N 25°05'09" W	31.62'
10.	N 03°58'11" W	18.62'
11.	N 37°53'36" E	34.01'
12.	N 16°05'48" E	55.48'
13.	N 43°44'22" E	36.93'
14.	N 13°51'21" E	36.80'
15.	N 43°51'15" E	23.69'
16.	N 04°07'10" E	22.05'
17.	N 26°32'55" E	14.62'
18.	N 56°53'47" E	15.60'
19.	N 37°09'54" E	39.17'
20.	N 64°20'05" E	20.99'
21.	N 82°43'33" E	39.27'
22.	N 73°02'27" W	41.72'
23.	S 46°40'43" W	33.67'
24.	S 65°33'05" W	20.21'
25.	S 80°56'51" W	54.60'
26.	S 33°39'31" W	23.41'
27.	S 21°41'45" W	58.70'
28.	S 36°13'21" W	16.24'
29.	N 01°18'48" W	24.08'
30.	S 06°31'35" W	23.60'
31.	N 01°23'02" W	49.00'
32.	N 34°08'40" W	5.47'
33.	N 67°23'19" W	20.00'

NOTES

1. Bearing are referenced to a 14.985 acre tract, as recorded in Doc. No. 20210114000088080, in the Deed Records of Collin County, Texas.
2. All lot lines are radial or perpendicular to the street unless otherwise noted by bearing.
3. ½" iron rods with "CORWIN ENGR. INC." caps set at all boundary corners, block corners, points of curvature, points of tangency, and angle points in public right-of-way unless otherwise noted.
4. "Notice: Selling a portion of this addition by metes and bounds is a violation of city ordinance and state law and is subject to fines and withholding of utilities and building permits."
5. Lots or portions of lots within the floodplain or areas of special flood hazard as depicted on FEMA FIRM Panel 48085C0405J, Revised June 2, 2009, require a development permit prior to issuance of a building permit or commencement of construction including site grading, on all or part of those lots.
6. Access to Christian Lane is limited to emergency access only.
7. Private streets are dedicated to and maintained by the Homeowners Association (H.O.A.).
8. All lots must utilize alternative type On-Site Sewage Facilities.
9. Must maintain state-mandated setback of all On-Site Sewage Facility components from any/all easements and drainage areas.
10. Final grading, per the grading plan, will be required prior to installation/operation of On-Site Sewage Facilities.
11. Individual site evaluations and OSSF design plans must be submitted to and approved by Collin County for each lot prior to construction of any OSSF system.
12. All drainage easements shall be owned/maintained by the HOA.
13. All landscape easements shall be maintained by the HOA.
14. Lot 1 driveways shall only connect to Cowboy Court. Lot 1 has no access to Winningkoff Road nor Vaquero Way.

15. OSSF notes:

All lots must utilize alternative type On-Site Sewage Facilities.

Presence of fractured rock throughout the subdivision may further limit the type of alternative type On-Site Sewage Facilities to Aerobic Treatment with Surface Application on individual lots.

Must maintain state-mandated setback of all On-Site Sewage Facility components from any/all easements and drainage areas, water distribution lines, sharp breaks and/or creeks/rivers/ponds, etc. (Per State regulations). No variances will be granted for setbacks or for OSSF reduction. o There is a large, variable-width drainage easement/creek/waterway on lots 1, 2, 3, 4, 5, 6 7, 9 and 12 to which OSSF setbacks apply.

- There is a 20' drainage and utility easement along every road-adjacent property line of each lot to which OSSF setbacks apply.
- There is a 15' access easement along the southern property line of lot 8 to which OSSF setbacks apply.
- There is additionally a bisecting 20' easement and an existing pond along the southern half of lot 1 to both of which OSSF setbacks apply. Lot 13A is not a buildable lot and is not approved for OSSF.

There are no easements other than those noted above.

There were no permitted/approved existing structures with associated OSSF(s) on any lot at the time of approval. Any existing structures or OSSFs on lots must be reviewed and permitted by Collin County Development Services prior to any use.

A portion of lots 2, 3, 4, 5, 6 and 7 is located within the 100-year flood plain: o Any OSSF that is located within the 100-year flood plain may be subject to special planning requirements or may be restricted from being within the flood plain.
- Any future structures and OSSFs must follow Flood Plain regulations in effect at the time of permitting.
- A pre-planning meeting with RS/PE and Development Services is recommended prior to any development planning.

Tree removal and/or grading for OSSF may be required on individual lots.

There are no water wells noted in this subdivision and no water wells are allowed without prior approval from Collin County Development Services.

Each lot is limited to a maximum of 5,000 gallons of treated/disposed sewage each day.

Individual site evaluations and OSSF design plans (meeting all State and County requirements) must be submitted to and approved by Collin County for each lot prior to construction of any OSSF system.

TOTAL RESIDENTIAL LOTS 12
TOTAL ACRES 41.512

FINAL PLAT

BARRATT LAKE ESTATES

LOTS 1-13 BLOCK A
OUT OF THE
JOHN THOMPSON SURVEY, ABSTRACT NO. 893
GOODMAN DUCASE SURVEY, ABSTRACT NO. 270
IN THE
CITY OF LUCAS
COLLIN COUNTY, TEXAS
ZONING: R-2

OWNER
BARRATT LAKE ESTATES, LLC.
PO BOX 863264
PLANO, TEXAS 75086

PREPARED BY
CORWIN ENGINEERING, INC.
TBPELS FIRM #5951
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013
972-396-1200

FEBRUARY 2023 SCALE: 1"=100'

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS:

THAT BARRATT LAKE ESTATES, LLC., acting herein by and through its duly authorized officers, does hereby certify and adopt this final plat designating the herein above described property as BARRATT LAKES ESTATES, an addition to the City of Lucas. The streets shown on this plat as access easements are for the use and benefit of the owners of the property in this subdivision, their leasees, invitees and licensees. By acceptance of a deed conveying title to any lot in this subdivision, the owner thereof shall be deemed to have agreed and acknowledged and does certify the following:

1. The streets are private streets and are dedicated to the City of Lucas as Access, Utility, and Drainage Easements. The City has no responsibility or liability to make any repairs to such streets as long as they are private streets, except repairs made necessary by reason of installation, repair or replacement of municipal utilities located therein or in the utility easements adjacent thereto.

2. So long as such streets are private, the sole responsibility for maintenance and replacement thereof shall be borne by the owners of the lots in this subdivision and/or any homeowners' association hereafter established for the owners of lots in this subdivision (the "Association"). Such maintenance and replacement shall be in conformance with the requirements, standards, and specifications of the City of Lucas, as presently in effect or as same may be hereafter amended. This provision may be enforced by specific performance or by any other remedy allowed by law.

3. Neither the property owners within this subdivision nor the Association nor any other association or other organization or entity representing them shall have the right to request dedication (whether by voluntary or involuntary act or omission) of such private streets to the City unless and until the City has inspected such streets and determined that, at the time in question, they meet the City's standards. If the City desires to accept a dedication of said streets, the Association, its successors or assigns, or the owners of the lots in the subdivision will make, at the owners' or the Association's expense, all repairs required by the City to comply with then City standards. The City shall have sole discretion to accept or reject a proposed dedication of the private streets to the City. Before dedication, all public improvements and dedications shall be free and clear of all debt, liens, and/or encumbrances.

4. The easements and public use areas, as shown, are dedicated for the benefit of the owners of the property in this subdivision, their leasees, invitees and licensees use forever, for the purposes indicated on this plat.

5. The provisions hereof shall be binding upon and enforceable against all property owners in this subdivision, their successors and assigns and the Association and its successors and assigns. The provisions hereof may be enforced by the City, any property owner in the subdivision, and/or the Association.

6. These covenants and restrictions shall run with the land and be binding on the owners of the property in this subdivision, their successors and assigns, the Association, its successors and assigns and all parties claiming by, through and under them. In the event a replat is requested on all or part of this property, the City may require any similar or additional restrictions and covenants in it's sole discretion. These covenants and restrictions shall terminate when all the access easements shown on this plat are included within a replat of all or part of this property and are dedicated to the City as public streets and alleys. In addition, all modifications to this document shall be by means of plat and approved by the City of Lucas.

7. If the owners of the property in this subdivision should open the private streets to the public, such use shall be considered a temporary license only. The owners of property in this subdivision through the Association reserve the right to close the street to the public at any time prior to formal dedication of the street to the public, and acceptance of the same by the City.

8. The owners of property in this subdivision and the Association shall allow access to the subdivision and the streets in the subdivision to all City employees and contractors acting on behalf of the City and all governmental service vehicles, including, without limitation, law enforcement, fire, ambulance, sanitation, inspection and health vehicles. In addition, Utility Easements may also be used for the mutual use and accommodation of all public utilities desiring to use or using the same unless the easement limits the use to particular utilities, said use by public utilities being subordinate to the City's use thereof. The City of Lucas and public utilities shall, at all times, have the full right of ingress and egress to or from their respective easements for the purpose of constructing, reconstructing, inspecting, patrolling, maintaining, reading meters, and adding to or removing all or parts of their respective systems without the necessity of procuring permission from anyone.

9. The owners of property within this subdivision hereby agree and recognize that the entire subdivision is benefited by the City allowing the owners to maintain and control access to the private streets shown hereon, and that the City is benefited by having the value of the property enhanced for ad valorem tax purposes and not being under any maintenance obligations with respect to the private streets and alleys. For purposes of enforcement of these covenants, the benefits shall constitute sufficient and valid consideration.

10. The owner of each lot affected by a drainage easement across the rear portion of such lot may not construct any improvements within such lot except those improvements which (a) do not impeded the natural flow of water across the property affected by such drainage easement (such as swimming pools and open fences) and (b) are built in accordance with and pursuant to a building permit issued by the City. In no event shall BARRATT LAKES ESTATES, LLC., the City, the Association or any of their successors or assigns have any liability for any improvements built in any drainage or utility easement. Each lot owner shall build in such area at his or her own risk and shall indemnify BARRATT LAKES ESTATES, LLC., the City, the Association and their successors and assigns against any and all losses, damages and liability arising out of or associated with the construction of improvements on such owner's lot in any drainage or utility easement.

11. No buildings, fences, trees, shrubs or other improvements or growths shall be constructed or placed upon, over or across the easements as shown, except that landscape improvements may be placed in Landscape Easements, if approved by the HOA. Landscaping may be placed in/or near other easements with city approval. The City and public utility entities shall have the right to remove and keep removed all or parts of any buildings, fences, trees, shrubs or other improvements or growths which may in any way endanger or interfere with the construction, maintenance, or efficiency of their respective systems in said easements. The City of Lucas is not responsible for replacing any improvements in, under, or over any easements caused by maintenance or repair.

12. Invalidation of any word, phrase, sentence, paragraph, covenant or restriction by court judgment or otherwise, shall not affect the validity of the other covenants or restrictions contained herein.

This plat approved subject to all platting ordinances, rules, regulations and resolutions of the City of Lucas, Texas.

WITNESS, my hand, this the____day of_____,2023.

BY:

_____
Stephen Dinapoli
President

THE STATE OF TEXAS
COUNTY OF COLLIN

BEFORE ME, the undersigned, a Notary Public for the State of Texas, on this day personally appeared STEPHEN DINAPOLI, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that the same is his act and deed in the capacity therein stated and for the purposes and considerations therein expressed.

WITNESS MY HAND AND SEAL OF OFFICE, this the_____ day of_____, 2023.

_____
NOTARY PUBLIC, STATE OF TEXAS

LEGAL DESCRIPTION

WHEREAS, BARRATT LAKE ESTATES, LLC., is the owner of a tract of land situated in the John Thompson Survey, Abstract No. 893 and Goodman Ducase Survey, Abstract No. 270, being all of a 14.985 acre tract and a 14.088 acre tract, as described in Doc. No. 20210114000088080 in the Deed Records of Collin County, Texas, and a 4.417 acre tract, as described in 20210107000041130 in said Deed Records and a 8.0 acre tract, as described in Doc. No. 20210408000705330 0 in said Deed Records and being more particularly described as follows:

BEGINNING, at a PK nail set at the southwest corner of said 4.417 acre tract being in Winningkoff Road (Variable R.O.W.);

THENCE, North 02° 37'29" East, along the west line of said 4.417 acre tract, for a distance of 407.18 feet, to a 1/2 inch iron rod found at the northwest corner of said 4.417 acre tract;

THENCE, South 84° 33'00" East, along the north line of said 4.417 acre tract, for a distance of 548.02 feet, to a 1/2 inch iron rod found at the northeast corner of said 4.417 acre tract and being in the west line of said 14.088 acre tract;

THENCE, North 22° 36'41" East, along the west line of said 14.088 acre tract, for a distance of 321.06 feet, to a 1/2 inch iron rod found;

THENCE, North 46° 36'18" East, continuing along said west line, for a distance of 133.81 feet, to a 1/2 inch iron rod found;

THENCE, North 77° 54'25" East, continuing along said west line, for a distance of 101.61 feet, to a 1/2 inch iron rod found;

TEHNCE, North 01° 17'02" East, continuing along said west line, for a distance of 141.23 feet, to a 1/2 inch iron rod found at the northwest corner of said 14.088 acre tract;

THENCE, South 88° 34'42" East, along the north line of said 14.088 acre tract, for a distance of 654.99 feet, to a Corp. of Engineer Monument stamped 1413-3 found at the northeast corner of said 14.088 acre tract and the northwest corner of said 14.985 acre tract;

THENCE, South 67° 02'54" East, along the north line of said 14.985 acre tract, for a distance of 405.22 feet, to a Corp. of Engineer Monument stamped 1413-2 found;

THENCE, South 34° 25'06" East, continuing along said north line, for a distance of 857.82 feet, to a Corp. of Engineer Monument Stamped 1413-1 found, at the most easterly corner of said 14.985 acre tract;

THENCE, South 89° 35'25" West, along the south line of said 14.985 acre tract, for a distance of 548.93 feet, to a 1/2 inch iron rod found at the northeast corner of said 8.0 acre tract;

THENCE, South 02° 27'53" East, departing said south line and with the east line of said 8.0 acre tract, for a distance of 776.75 feet, to a 1/2 inch iron rod found at the southeast corner of said 8.0 acre tract;

THENCE, South 83° 30'27" West, along the south line of said 8.0 acre tract, for a distance of 200.03 feet, to a 1/2 inch iron rod found;

THENCE, South 89° 35'53" West, continuing along said south line, for a distance of 240.17 feet, to a 1/2 inch iron rod found at the southwest corner of said 8.0 acre tract;

THENCE, North 02° 23'58" West, along the west line of said 8.0 acre tract, for a distance of 796.75 feet, to a 1/2 inch iron rod found at the northwest corner of said 8.0 acre tract being in south line of said 14.985 acre tract;

THENCE, South 89° 30'55" West, along the south line of said 14.985 acre tract, for a distance of 297.06 feet, to a 1/2 inch iron rod found at the southwest corner of said 14.985 acre tract and being the southeast corner of said 14.088 acre tract;

THENCE, South 89° 30'55" West, along the south line of said 14.088 acre tract, for a distance of 649.52 feet, to a 1/2 inch iron rod found;

THENCE, South 88° 22'34" West, continuing along said south line, for a distance of 183.74 feet, to a Railroad spike found at the southwest corner of said 14.088 acre tract and being the southeast corner of said 4.417 acre tract;

THENCE, South 89° 33'39" West, along the south line of said 4.417 acre tract, for a distance of 282.19 feet, to the POINT OF BEGINNING and containing 41.512 acres of land.

SURVEYOR'S CERTIFICATE

I, WARREN L. CORWIN, a registered Professional Land Surveyor in the State of Texas, do hereby certify that I prepared this plat from actual and accurate survey of the land and that the corner monuments shown thereon were properly placed, under my personal supervision, in accordance with the subdivision regulations of the City of Lucas, Texas.

_____
Registered Professional Land Surveyor
Registration No. 4621
Date:

THE STATE OF TEXAS
COUNTY OF COLLIN

Before me, the undersigned, a Notary Public in and for the State of Texas, on this day personally appeared WARREN L. CORWIN, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed same for the purpose and consideration therein expressed.

Given under my hand and seal of office, this_____day of_____, 2023.

_____
NOTARY PUBLIC, STATE OF TEXAS

This plat is hereby approved by the Planning and Zoning Commission of the City of Lucas, Texas

_____ _____
Chairman, Planning and Zoning Commission — Date
Dusty Kuykendall

ATTEST:

_____ _____
Signature — Date

_____
Name & Title

The Director of Public Works of the City of Lucas, Texas hereby certifies that to the best of his/her knowledge or belief, this subdivision plat conforms to all requirements of the Code of Ordinances and with engineering construction standards and processes adopted by the City of Lucas, Texas as to which his/her approval is required.

_____ _____
Director of Public Works — Date
Scott Holden

The Development Services Director of the City of Lucas, Texas hereby certifies that to the best of his/her knowledge or belief, this subdivision plat conforms to all requirements of the Code of Ordinances, or as may have been amended or modified, as allowed, by the Planning and Zoning Commission as to which his/her approval is required.

_____ _____
Development Services Director — Date
Joseph Hilbourn

Health Department Certification:

I, as a representative of Collin County Development Services, do hereby certify that the on-site sewage facilities described on this plat conform to the applicable OSSF laws of the State of Texas, that site evaluations have been submitted representing the site conditions in the area in which on-site sewage facilities are planned to be used.

_____
Designated Representative for Collin County Development Services

FINAL PLAT

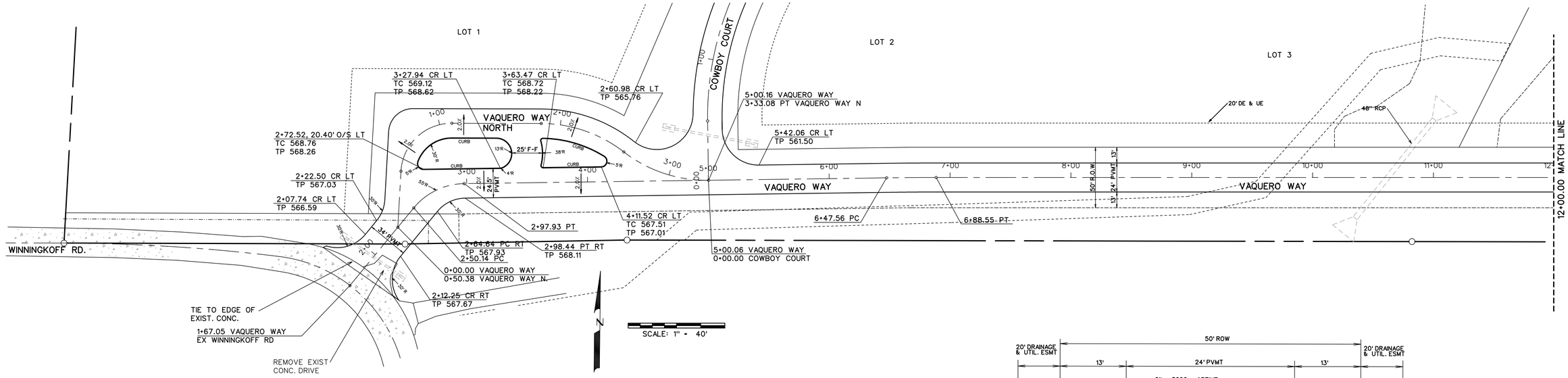
BARRATT LAKE ESTATES

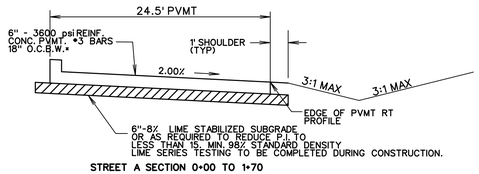
LOTS 1-13 BLOCK A
OUT OF THE
JOHN THOMPSON SURVEY ABSTRACT NO. 893
GOODMAN DUCASE SURVEY, ABSTRACT NO. 270
IN THE
CITY OF LUCAS
COLLIN COUNTY, TEXAS
ZONING: R-2

OWNER
BARRATT LAKE ESTATES, LLC.
PO BOX 863264
PLANO, TEXAS 75086

PREPARED BY
CORWIN ENGINEERING, INC.
TBPELS FIRM #5951
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013
972-396-1200

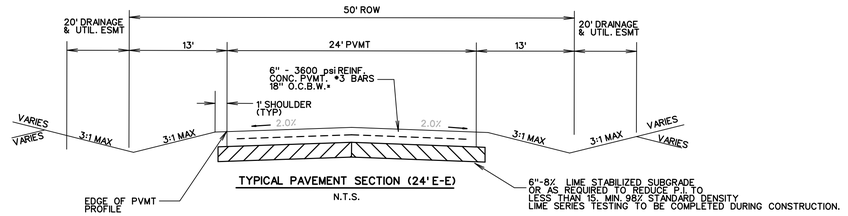
FEBRUARY 2023





STREET A SECTION 0+00 TO 1+70

THE PAVEMENT CROSS SECTION(S) SHALL BE REVISED UPON THE COMPLETION OF A GEOTECHNICAL REPORT AS REQUIRED BY THE CITY ENGINEER.



TYPICAL PAVEMENT SECTION (24' E-E)

N.T.S.

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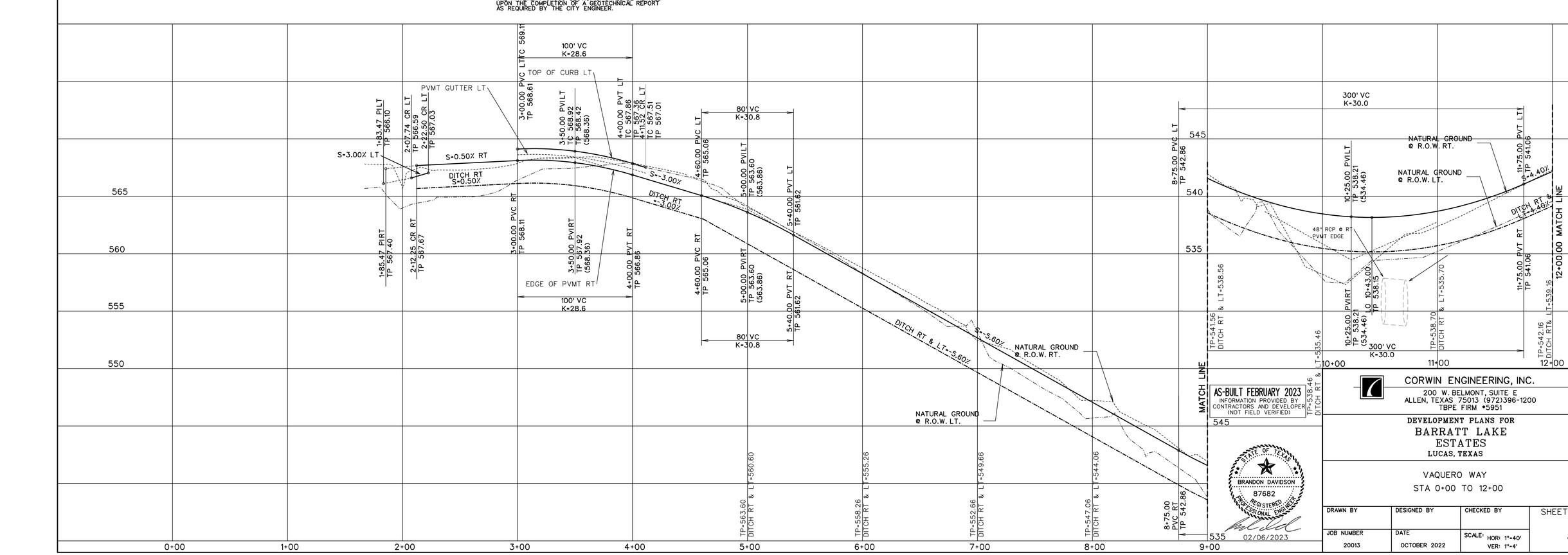


AS-BUILT FEBRUARY 2023
INFORMATION PROVIDED BY CONTRACTORS AND DEVELOPER (NOT FIELD VERIFIED)

STATE OF TEXAS
BRANDON DAVIDSON
87682
REGISTERED PROFESSIONAL ENGINEER
02/06/2023

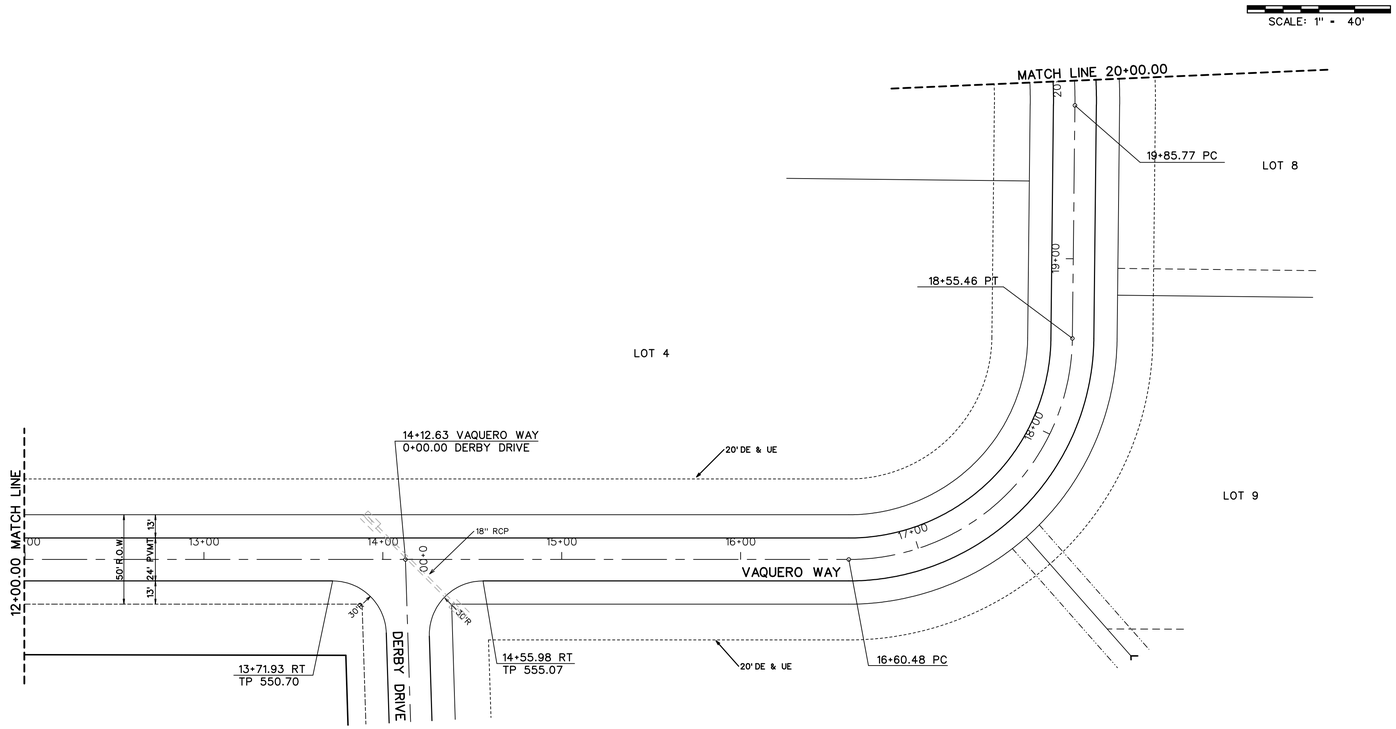
CORWIN ENGINEERING, INC.
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200
TBPE FIRM #5951

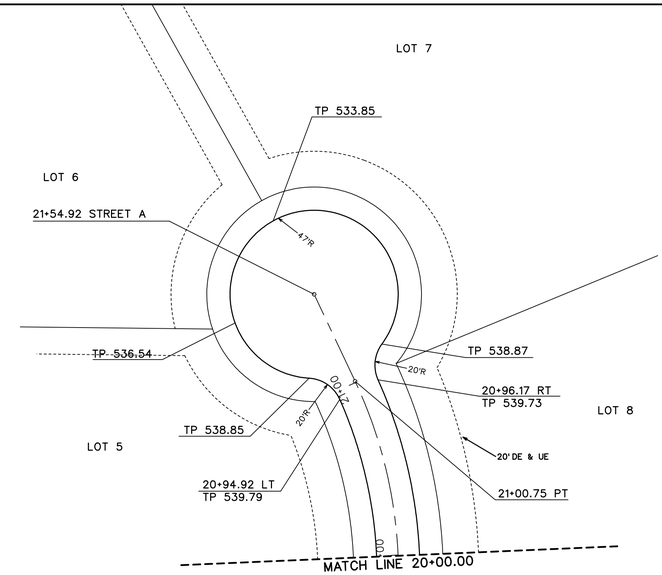
DEVELOPMENT PLANS FOR
BARRATT LAKE ESTATES
LUCAS, TEXAS

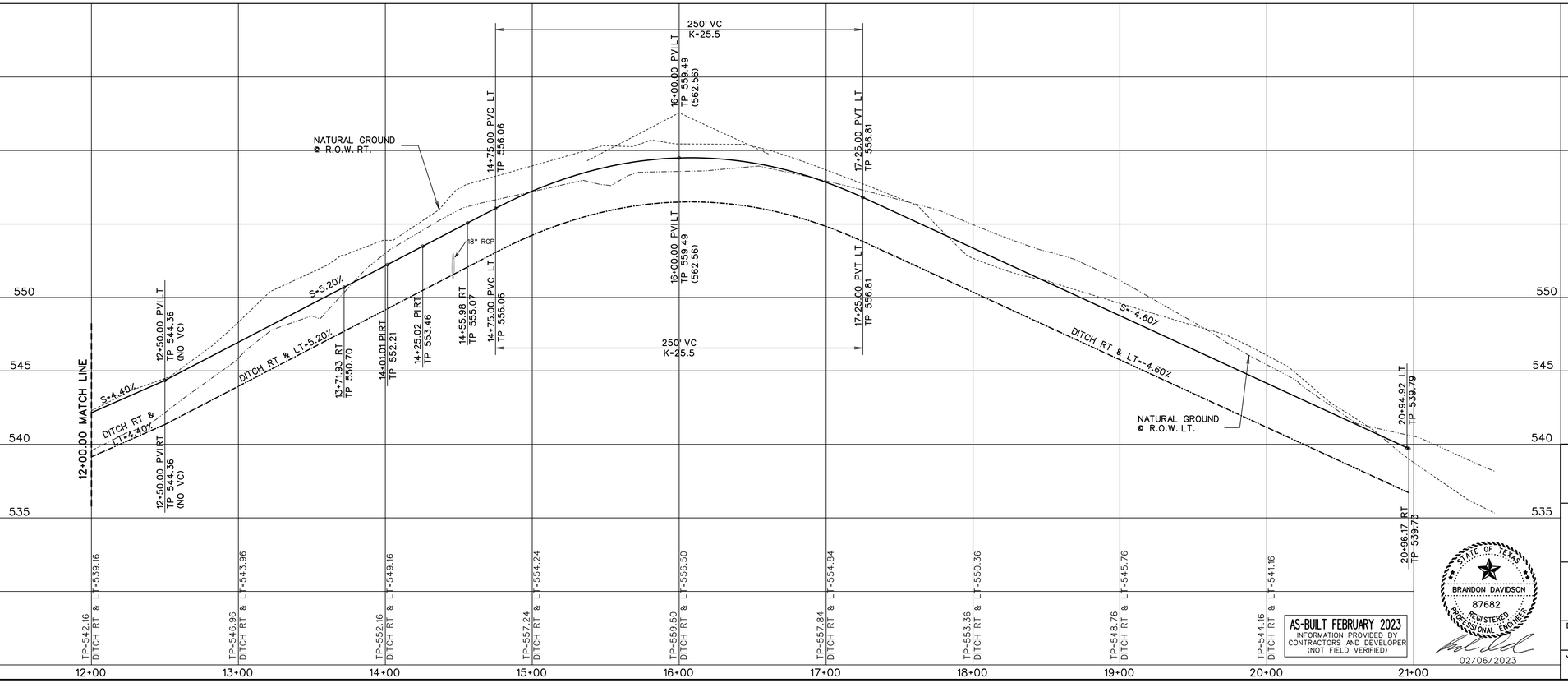
VAQUERO WAY
STA 0+00 TO 12+00

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 20013	DATE OCTOBER 2022	SCALE: HOR: 1"=40' VER: 1"=4'	4

SCALE: 1" = 40'







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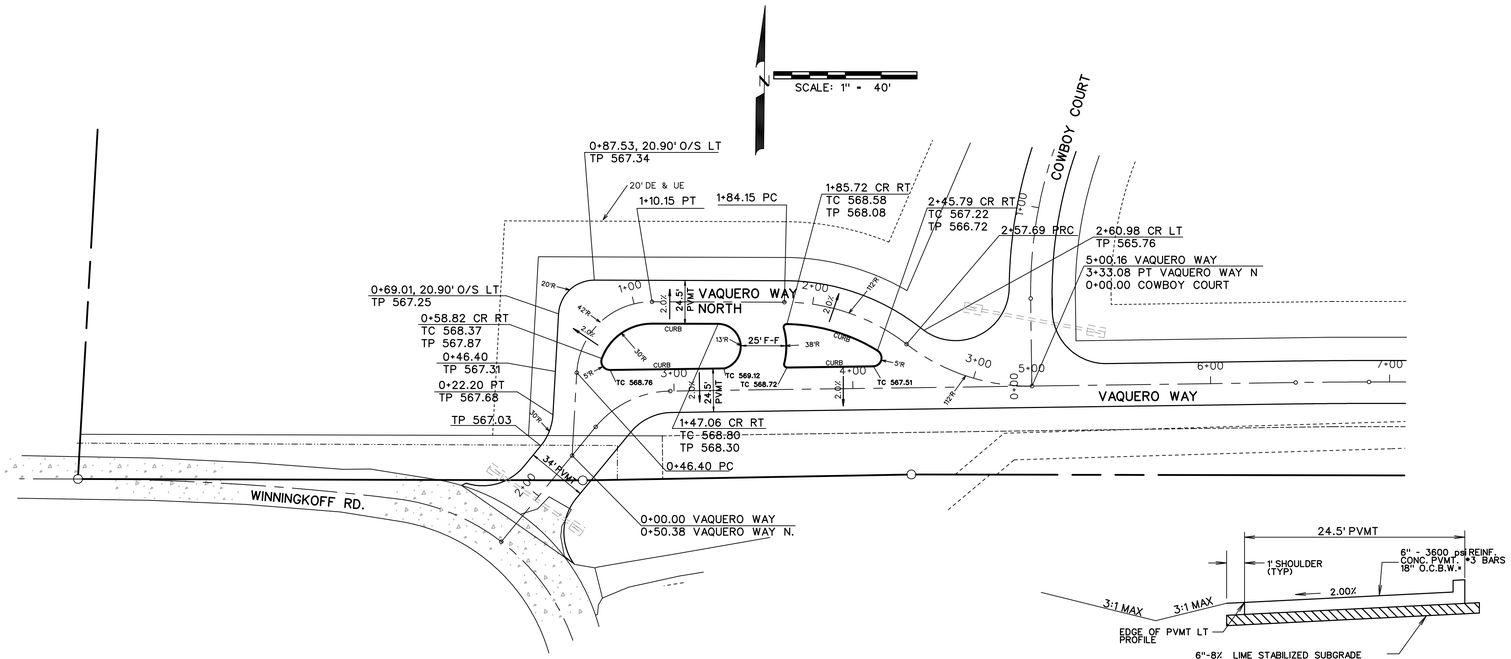
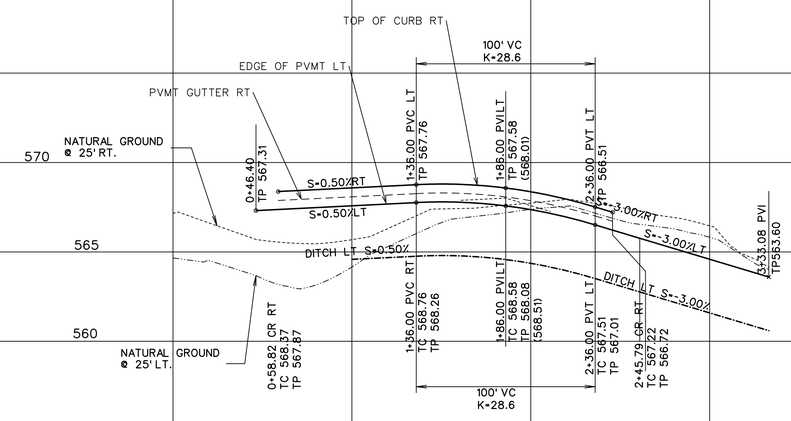
VAQUERO WAY
STA 12+00.TO END

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 20013	DATE OCTOBER 2022	SCALE: HOR: 1"=40' VER: 1"=4'	5





AS-BUILT FEBRUARY 2023
INFORMATION PROVIDED BY CONTRACTORS AND DEVELOPER (NOT FIELD VERIFIED)

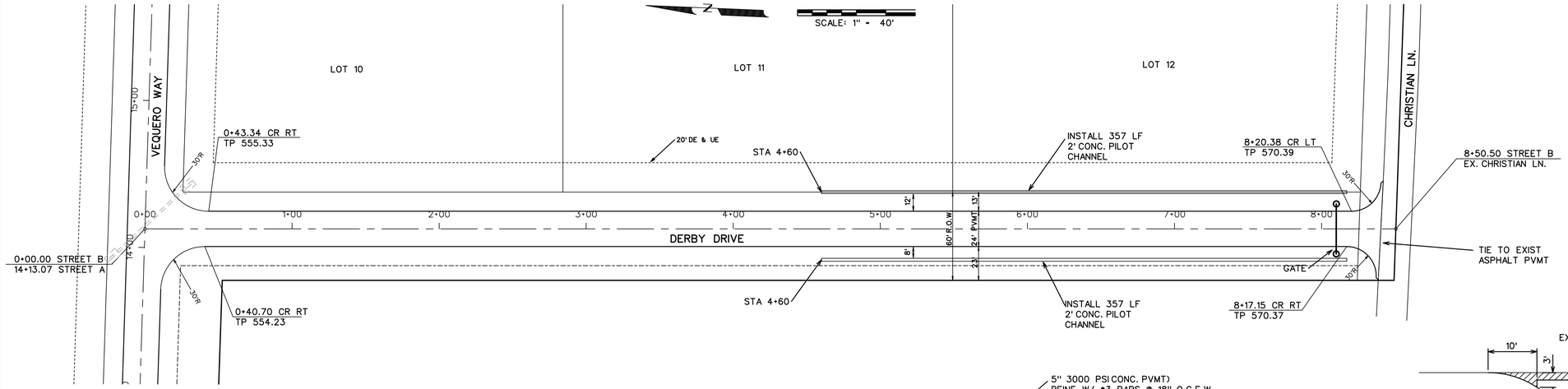
STATE OF TEXAS
BRANDON DAVIDSON
87682
REGISTERED PROFESSIONAL ENGINEER
02/06/2023

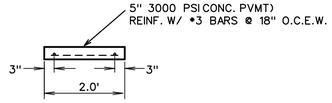
CORWIN ENGINEERING, INC.
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200
TBPE FIRM #5951

DEVELOPMENT PLANS FOR
BARRATT LAKE ESTATES
LUCAS, TEXAS

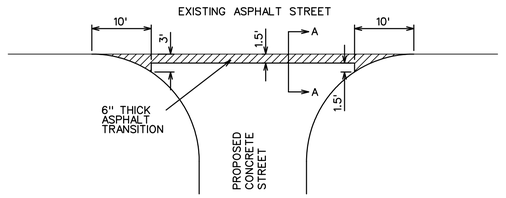
VAQUERO WAY NORTH

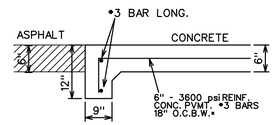
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 20013	DATE OCTOBER 2022	SCALE: HOR: 1"=40' VER: 1"=4'	6



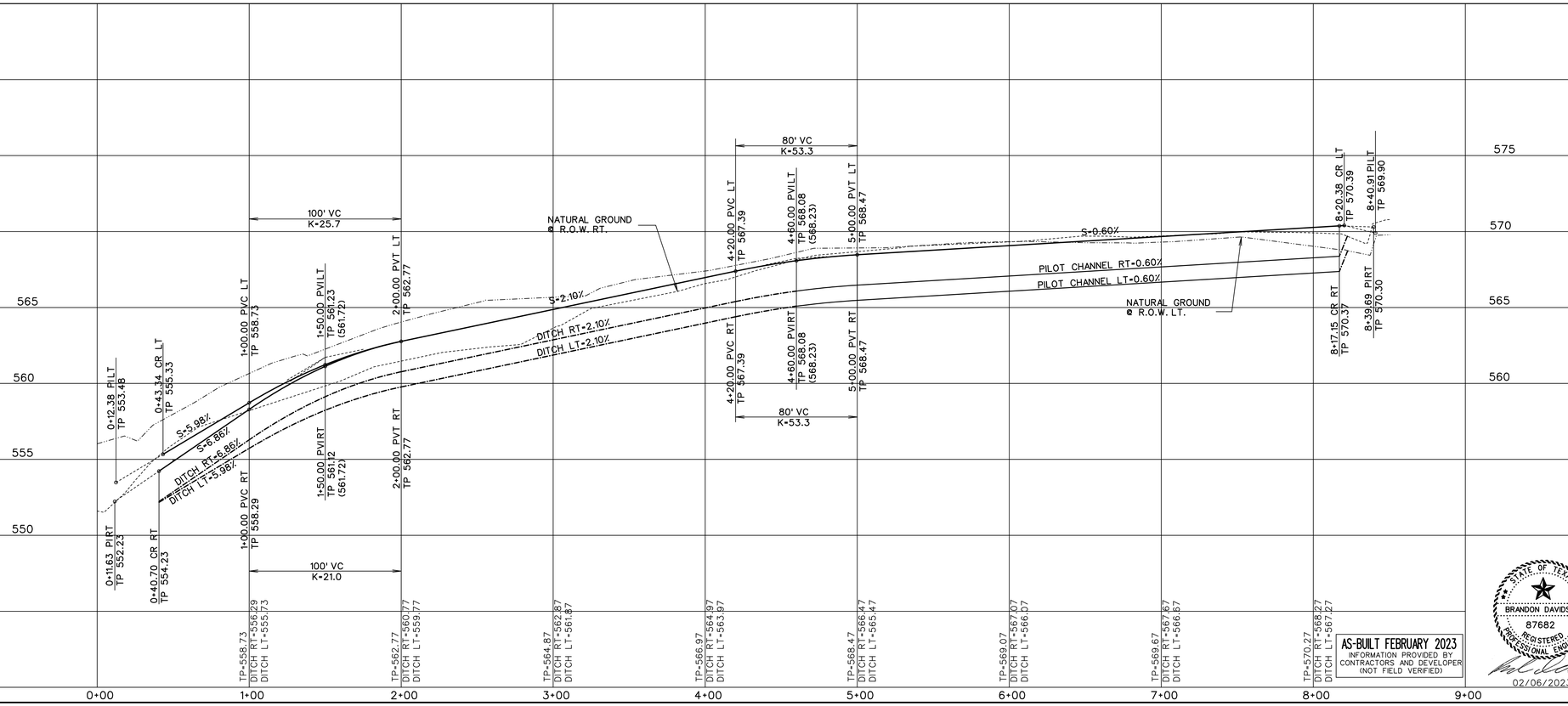


PILOT CHANNEL DETAIL





CONCRETE TO ASPHALT CONNECTION DETAIL



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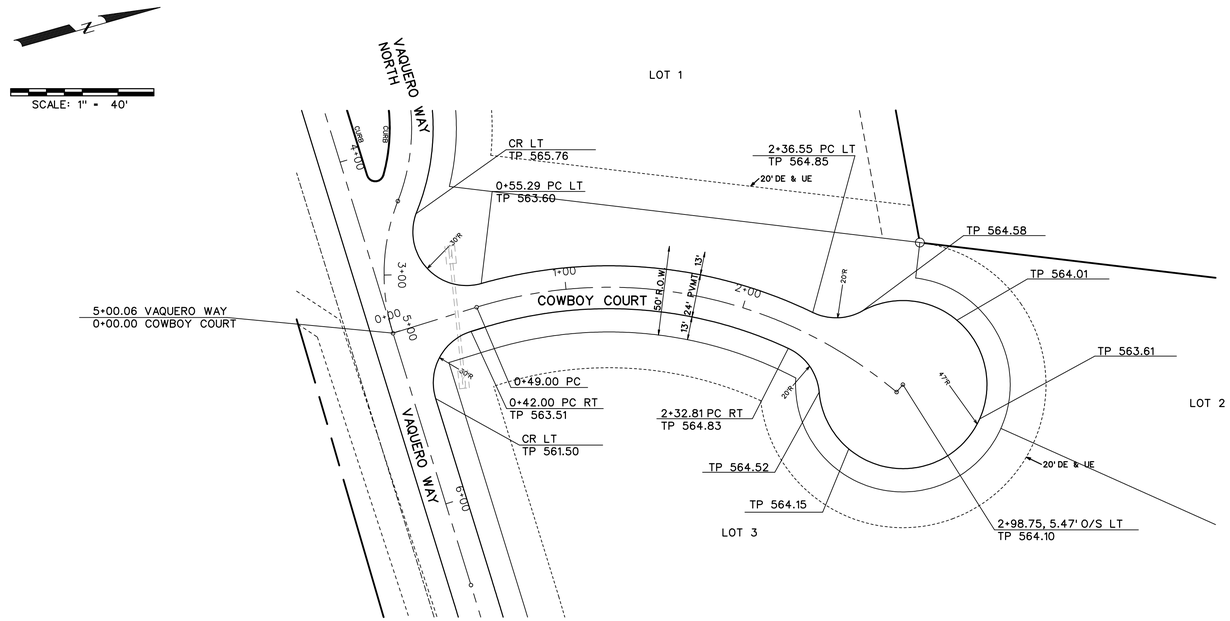
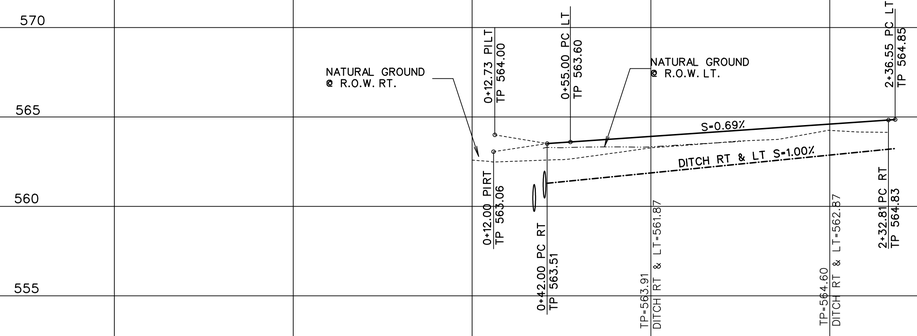
DEVELOPMENT PLANS FOR
BARRATT LAKE
ESTATES
LUCAS, TEXAS

DERBY DRIVE

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 20013	DATE OCTOBER 2022	SCALE: HOR: 1"=40' VER: 1"=4'	7





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CORWIN ENGINEERING, INC.
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200
TBPE FIRM #5951

DEVELOPMENT PLANS FOR
BARRATT LAKE ESTATES
LUCAS, TEXAS

COWBOY COURT

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 20013	DATE OCTOBER 2022	SCALE: HOR: 1"=40' VER: 1"=4'	8

N

SCALE: 1" = 50'

LOT 2

ZONE A PER FEMA
FIRM PANEL 48085C0405J
REVISED JUNE 2, 2009

LOT 6

LOT 5

LOT 3

LOT 4

LOT 1

DRAINAGE EASEMENT

DRAINAGE EASEMENT

DRAINAGE EASEMENT

COWBOY COURT

YAQUERO WAY

MATCH LINE

PROPOSED RETAINING WALL

WINNINGKOFF RD

LEGEND

SPOT ELEVATION	706.2
EXIST. CONTOUR	-706-
PROP. CONTOUR	704
RETAINING WALL	
TOP OF WALL GRADE	T706.2
BOTTOM OF WALL GRADE	B706.2

AS-BUILT FEBRUARY 2023
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CORWIN ENGINEERING, INC.
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200
TBPE FIRM #5951

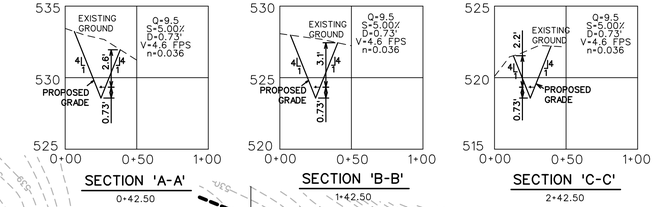
DEVELOPMENT PLANS FOR
BARRATT LAKE ESTATES
LUCAS, TEXAS

GRADING PLAN

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 20013	DATE OCTOBER 2022	SCALE: 1"=50'	9

SCALE: 1" = 50'

MATCH LINE



SECTION 'A-A'
0+42.50

SECTION 'B-B'
1+42.50

SECTION 'C-C'
2+42.50

DERBY DRIVE

CHRISTIAN LN.

DRAINAGE EASEMENT

LOT 4

LOT 5

LOT 6

LOT 7

LOT 8

LOT 9

LOT 10

LOT 11

LOT 12

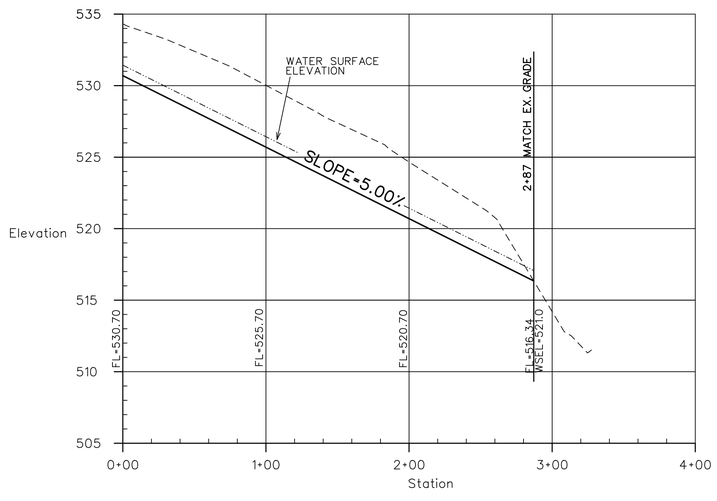
VAQUERO WAY

ZONE A PER FEMA
FIRM PANEL 48085C0405J
REVISED JUNE 2, 2009

A
A
B
B
C
C

DRAINAGE EASEMENT

LOT 6/7 GRADE TO DRAIN PROFILE



LEGEND

SPOT ELEVATION	706.2
EXIST. CONTOUR	-700-
PROP. CONTOUR	—704—
RETAINING WALL	
TOP OF WALL GRADE	T706.2
BOTTOM OF WALL GRADE	B706.2

AS-BUILT FEBRUARY 2023
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02/06/2023

CORWIN ENGINEERING, INC.
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200
TBPE FIRM #5951

DEVELOPMENT PLANS FOR
BARRATT LAKE ESTATES
LUCAS, TEXAS

GRADING PLAN

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 20013	DATE OCTOBER 2022	SCALE: 1"=50'	10

N

SCALE: 1" = 100'

LEGEND

- PROP. WATER LINE
- PROP. FIRE HYDRANT AND VALVE
- PROP. GATE VALVE
- PROP. FLUSH VALVE
- EXIST. WATER LINE
- EXIST. FIRE HYDRANT AND VALVE
- PROP. STORM SEWER
- PROP. CURB INLETS
- PROP. CONC. HEADWALL

NOTES:

1. ALL VALVES, FIRE HYDRANTS, METER BOXED, ETC. SHALL BE MARKED WITH A STAKE A MINIMUM OF 3 FEET ABOVE THE FIXTURE AND PAINTED ORANGE.
2. INDIVIDUAL SITE EVALUATIONS AND OSSF (ON-SITE SEWAGE FACILITIES) DESIGN PLANS MUST BE SUBMITTED TO AND APPROVED BY COLLIN COUNTY FOR EACH LOT PRIOR TO CONSTRUCTION OF ANY OSSF SYSTEM.
3. TCEQ SEPARATION CLEARANCES AND REQUIREMENTS TO BE FOLLOWED BY CONTRACTOR FOR INSTALLATION OF WATER LINE.

CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES FOR LOCATION AND ELEVATION PRIOR TO CONSTRUCTION. EXISTING UTILITIES SHOWN ARE APPROXIMATE AND MAY VARY IN ACTUAL LOCATION.

LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10
LOT 11
LOT 12

WATER SERVICE FOR LOT 2 SHALL BE KEPT INSIDE THE PARKWAY OF COWBOY CT.

METER FOR IRRIGATION SERVICE TO ISLAND SHALL BE PLACE ON NORTH SIDE OF PAVEMENT. INSTALL SLEEVE FOR IRRIGATION PIPE.

INSTALL: 1-8"X6" TEE, 1-8" VALVE, 1-6" VALVE, 1-FH

INSTALL: 1-11.25° BEND, 1-22.5° BEND

INSTALL: 2-8" 45° BENDS

INSTALL: 1-12"X8" TAPPING SLEEVE, 1-8" VALVE

INSTALL: 2"-IRRI. SERVICE

INSTALL: 1-8"X6" TEE, 2-8" VALVES, 1-6" VALVE, 1-11.25° BEND, 1-F.H.

INSTALL: 8" WATER

INSTALL: 8-45° BENDS

INSTALL: 5-8" 22.5° BENDS

INSTALL: 6-8" 22.5° BENDS

INSTALL: 1-8" VALVE, 2-45° HORIZ. BENDS, 1-8"X6" TEE, 1-6" VALVE, 1-FH

INSTALL: 1-8"X8" CUT IN TEE, 1-8" VALVE

22 LF BY BORE

CONTRACTOR SHALL COORDINATE WITH CITY OF LUCAS TO ISOLATE THIS SEGMENT OF LINE TO INSTALL TEE

4.0' TYP.

COWBOY COURT
VAQUERO WAY
WINNINGKOFF RD
DERBY DRIVE
CHRISTIAN LN.

EX 8" WL

AS-BUILT FEBRUARY 2023
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02/06/2023

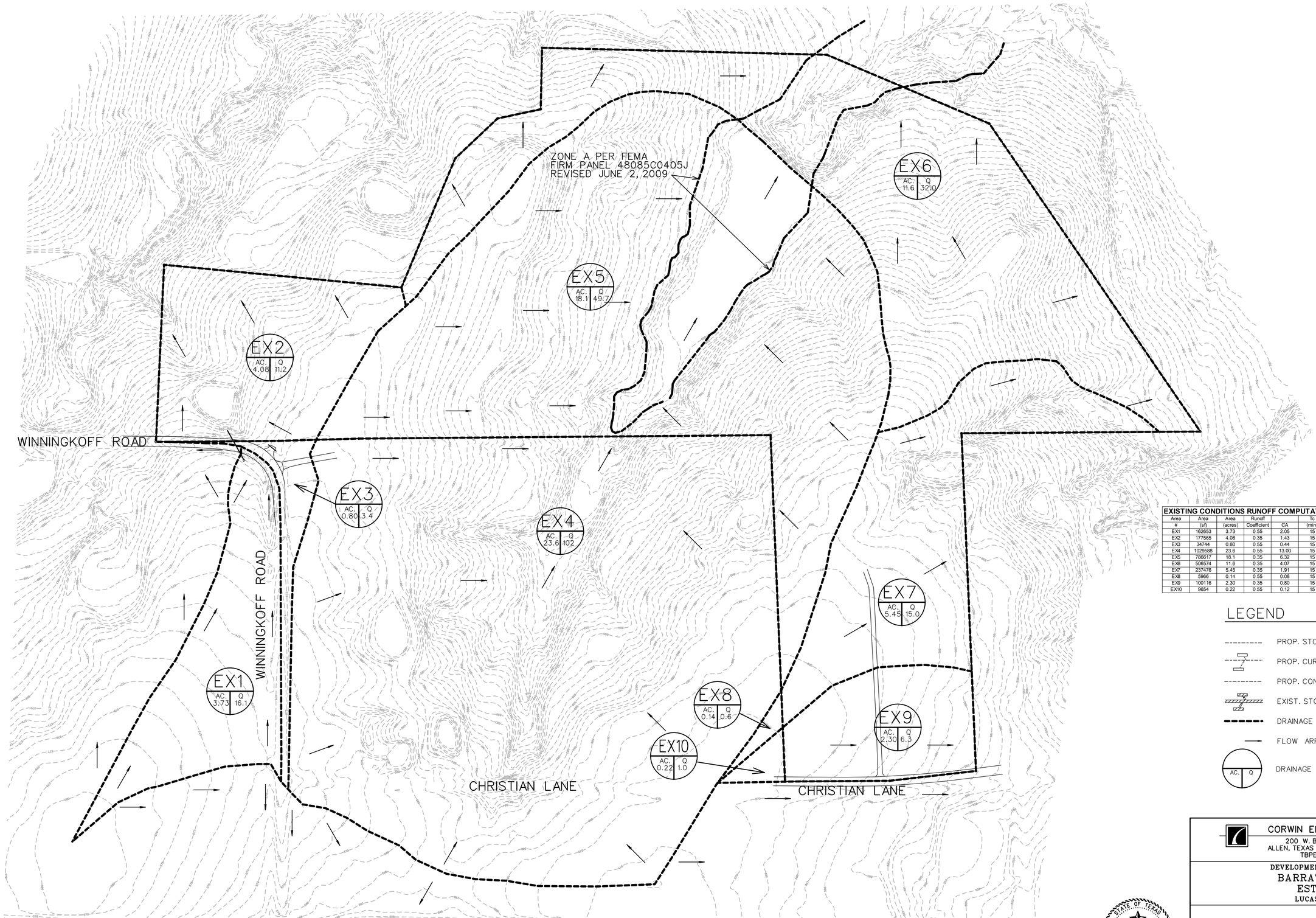
NO.	REVISIONS	BY	DATE
1	REVISED WATERLINE TO 4.0' OFF PAVEMENT		2/15/22

CORWIN ENGINEERING, INC.
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200
TBPE FIRM #5951

DEVELOPMENT PLANS FOR
BARRATT LAKE ESTATES
LUCAS, TEXAS

WATER PLAN

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
			11
JOB NUMBER	DATE	SCALE:	
20013	OCTOBER 2022	1"=100'	



EXISTING CONDITIONS RUNOFF COMPUTATIONS

Area #	Area (sf)	Area (acres)	Runoff Coefficient	CA	Tc (min)	I(25) (in/hr)	Q(25) (cfs)	I(100) (in/hr)	Q(100) (cfs)
EX1	162653	3.73	0.55	2.05	15	6.42	13.2	7.86	16.1
EX2	177565	4.08	0.35	1.43	15	6.42	9.2	7.86	11.2
EX3	34744	0.80	0.55	0.44	15	6.42	2.8	7.86	3.4
EX4	1029588	23.6	0.55	13.00	15	6.42	83.5	7.86	102.1
EX5	786617	18.1	0.35	6.32	15	6.42	40.6	7.86	49.7
EX6	506574	11.6	0.35	4.07	15	6.42	26.1	7.86	32.0
EX7	237476	5.45	0.35	1.91	15	6.42	12.3	7.86	15.0
EX8	5966	0.14	0.55	0.08	15	6.42	0.5	7.86	0.6
EX9	100116	2.30	0.35	0.80	15	6.42	5.2	7.86	6.3
EX10	9654	0.22	0.55	0.12	15	6.42	0.8	7.86	1.0

LEGEND

- PROP. STORM SEWER
- PROP. CURB INLETS
- PROP. CONC. HEADWALL
- EXIST. STORM SEWER
- DRAINAGE AREA DIVIDE
- FLOW ARROW
- AC. | Q — DRAINAGE AREA NO.

AS-BUILT FEBRUARY 2023
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DEVELOPMENT PLANS FOR
BARRATT LAKE ESTATES
LUCAS, TEXAS

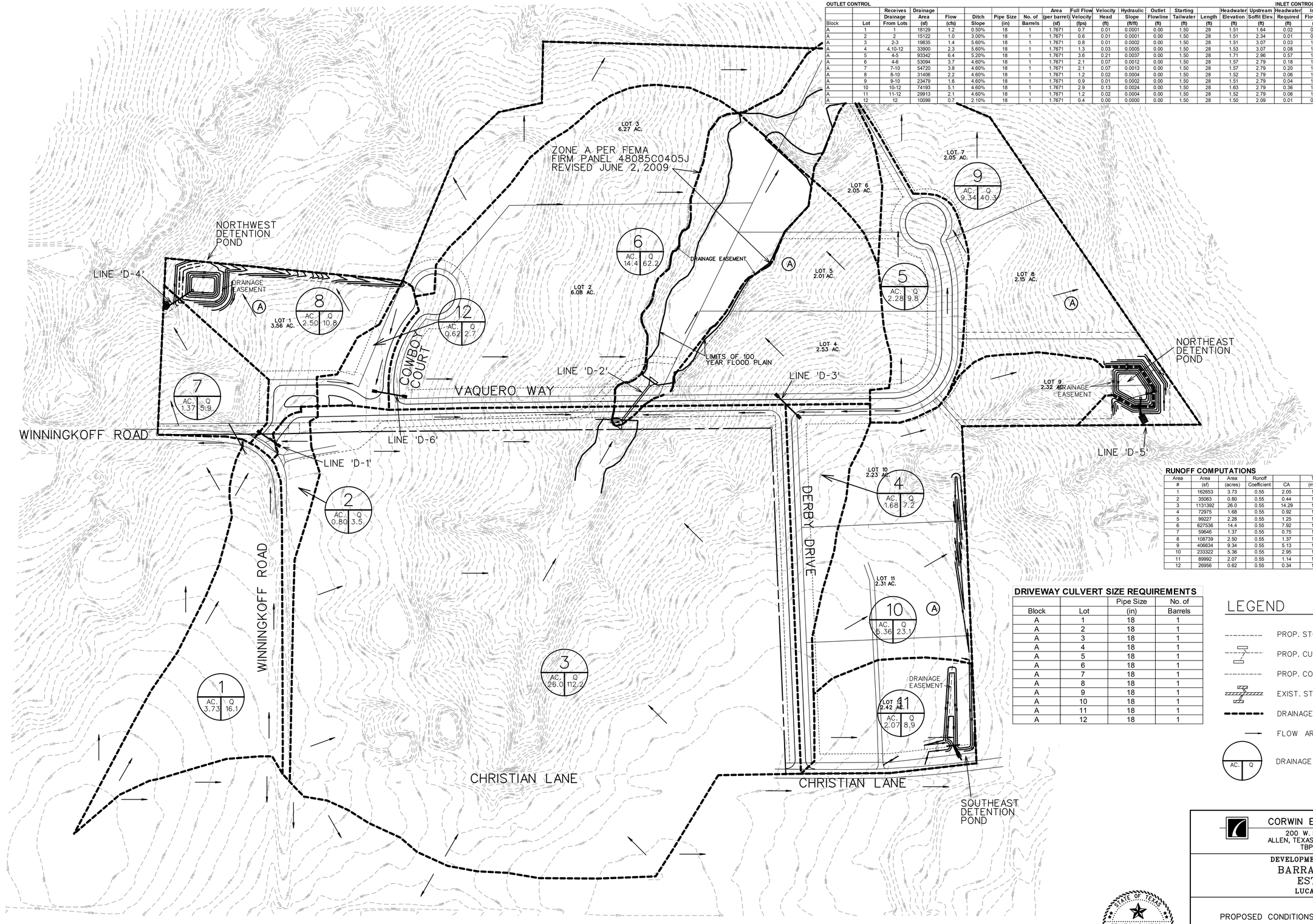
EXISTING CONDITIONS DRAINAGE AREA MAP

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 20013	DATE OCTOBER 2022	SCALE: 1"=100'	12

DRIVEWAY CULVERT CALCULATIONS

OUTLET CONTROL / INLET CONTROL

Block	Lot	Receives Drainage From Lots	Drainage Area (sf)	Flow (cfs)	Ditch Slope	Pipe Size (in)	No. of Barrels	Area (per barrel) (sf)	Full Flow Velocity (fps)	Velocity Head (ft)	Hydraulic Slope (ft/ft)	Outlet Flowline (ft)	Starting Tailwater (ft)	Length (ft)	Headwater Elevation (ft)	Upstream Soffit Elev. (ft)	Headwater Required (ft)	Inlet Flowline (ft)	Headwater Elevation (ft)	Inlet or Outlet Control?	U/S Elev. (ft)	U/S Elev. vs. Soffit (ft)
A	1	1	18129	1.2	0.50%	18	1	1.7671	0.7	0.01	0.0001	0.00	1.50	28	1.51	1.64	0.02	0.14	0.91	Outlet Control	1.51	-0.13
A	2	2	15122	1.0	3.00%	18	1	1.7671	0.6	0.01	0.0001	0.00	1.50	28	1.51	2.34	0.01	0.84	1.60	Outlet Control	1.60	-0.74
A	3	2-3	19835	1.4	5.60%	18	1	1.7671	0.8	0.01	0.0002	0.00	1.50	28	1.51	3.07	0.03	1.57	2.34	Outlet Control	2.34	-0.72
A	4	4,10-12	33900	2.3	5.60%	18	1	1.7671	1.3	0.03	0.0005	0.00	1.50	28	1.53	3.07	0.08	1.57	2.39	Outlet Control	2.39	-0.67
A	5	4-5	93342	6.4	5.20%	18	1	1.7671	3.6	0.21	0.0037	0.00	1.50	28	1.71	2.96	0.57	1.46	2.78	Outlet Control	2.78	-0.18
A	6	4-6	53094	3.7	4.60%	18	1	1.7671	2.1	0.07	0.0012	0.00	1.50	28	1.57	2.79	0.18	1.29	2.22	Outlet Control	2.22	-0.57
A	7	7-10	54720	3.8	4.60%	18	1	1.7671	2.1	0.07	0.0013	0.00	1.50	28	1.57	2.79	0.20	1.29	2.23	Outlet Control	2.23	-0.55
A	8	8-10	31406	2.2	4.60%	18	1	1.7671	1.2	0.02	0.0004	0.00	1.50	28	1.52	2.79	0.06	1.29	2.10	Outlet Control	2.10	-0.69
A	9	9-10	23479	1.6	4.60%	18	1	1.7671	0.9	0.01	0.0002	0.00	1.50	28	1.51	2.79	0.04	1.29	2.07	Outlet Control	2.07	-0.71
A	10	10-12	74193	5.1	4.60%	18	1	1.7671	2.9	0.13	0.0024	0.00	1.50	28	1.63	2.79	0.36	1.29	2.40	Outlet Control	2.40	-0.39
A	11	11-12	29913	2.1	4.60%	18	1	1.7671	1.2	0.02	0.0004	0.00	1.50	28	1.52	2.79	0.06	1.29	2.10	Outlet Control	2.10	-0.69
A	12	12	10099	0.7	2.10%	18	1	1.7671	0.4	0.00	0.0000	0.00	1.50	28	1.50	2.09	0.01	0.59	1.34	Outlet Control	1.50	-0.59



RUNOFF COMPUTATIONS

Area #	Area (sf)	Area (acres)	Runoff Coefficient	CA	Tc (min)	I(25) (in/hr)	Q(25) (cfs)	I(100) (in/hr)	Q(100) (cfs)
1	162653	3.73	0.55	2.05	15	6.42	13.2	7.86	16.1
2	35063	0.80	0.55	0.44	15	6.42	2.8	7.86	3.5
3	1131392	26.0	0.55	14.29	15	6.42	91.7	7.86	112.2
4	72975	1.68	0.55	0.92	15	6.42	5.9	7.86	7.2
5	99227	2.28	0.55	1.25	15	6.42	8.0	7.86	9.8
6	627536	14.4	0.55	7.92	15	6.42	50.9	7.86	62.2
7	59646	1.37	0.55	0.75	15	6.42	4.8	7.86	5.9
8	108739	2.50	0.55	1.37	15	6.42	8.8	7.86	10.8
9	406634	9.34	0.55	5.13	15	6.42	33.0	7.86	40.3
10	233322	5.36	0.55	2.95	15	6.42	18.9	7.86	23.1
11	89992	2.07	0.55	1.14	15	6.42	7.3	7.86	8.9
12	26956	0.62	0.55	0.34	15	6.42	2.2	7.86	2.7

DRIVEWAY CULVERT SIZE REQUIREMENTS

Block	Lot	Pipe Size (in)	No. of Barrels
A	1	18	1
A	2	18	1
A	3	18	1
A	4	18	1
A	5	18	1
A	6	18	1
A	7	18	1
A	8	18	1
A	9	18	1
A	10	18	1
A	11	18	1
A	12	18	1

LEGEND

- PROP. STORM SEWER
- PROP. CURB INLETS
- PROP. CONC. HEADWALL
- EXIST. STORM SEWER
- DRAINAGE AREA DIVIDE
- FLOW ARROW
- AC. / Q — DRAINAGE AREA NO.

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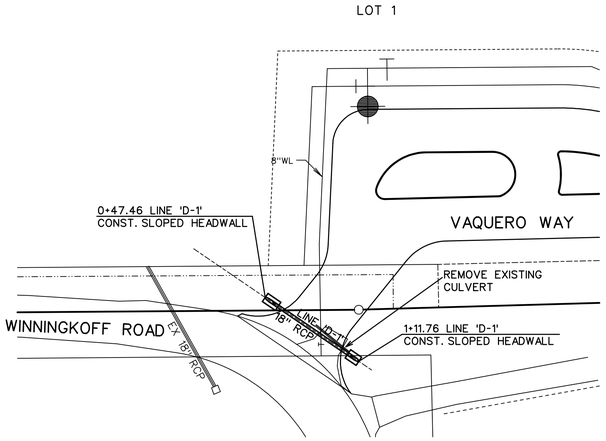
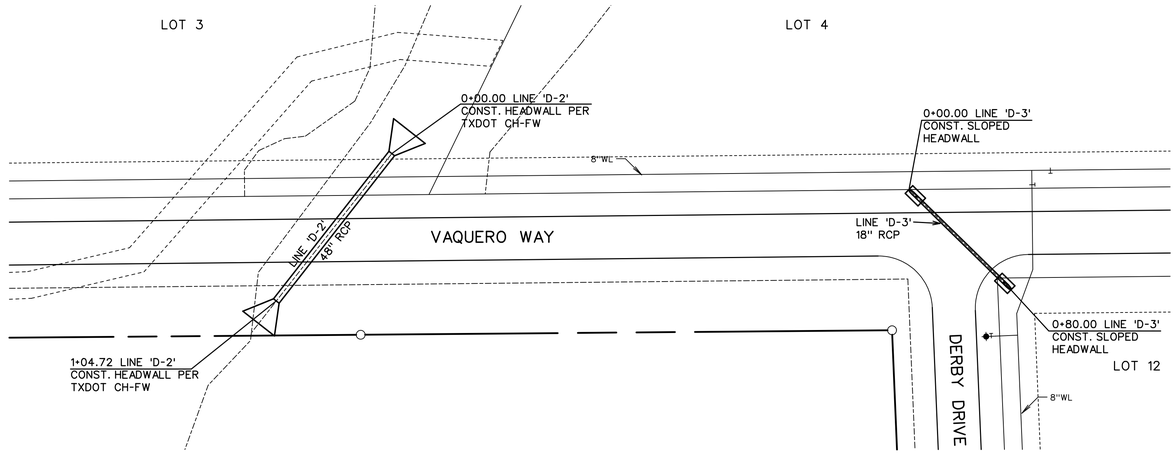
DEVELOPMENT PLANS FOR
BARRATT LAKE ESTATES
LUCAS, TEXAS

PROPOSED CONDITIONS DRAINAGE AREA MAP

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 20013	DATE OCTOBER 2022	SCALE: 1"=100'	13

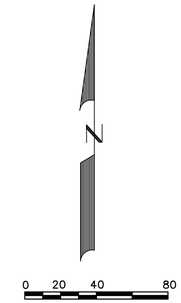


LINE 'D-1'



LINE 'D-2'

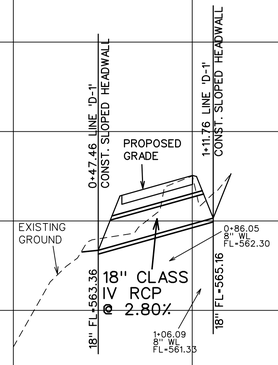
LINE 'D-3'



LEGEND

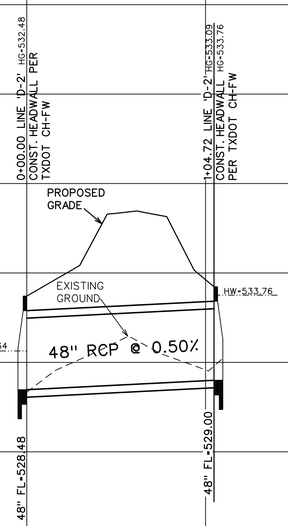
- (B) - BLOCK LABEL
- (19) - INLET NUMBER
- (1) - CURVE NUMBER
- SANITARY SEWER
- WATER
- PROPOSED STORM SEWER
- EXISTING STORM SEWER

18" RCP
Q_{100}= 3.5 cfs
V_{100}= 2.0 fps
S = 0.0011
CAP= 17.6 cfs
PARTIAL FLOW



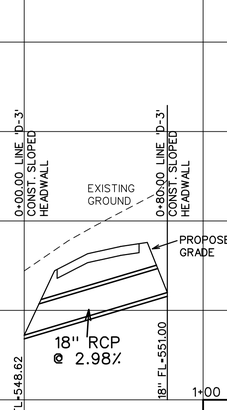
LINE 'D-1'

48" RCP
Q_{100}= 112.3 cfs
V_{100}= 8.9 fps
S = 0.0061
CAP= 112.3 cfs



LINE 'D-2'

18" RCP
Q_{100}= 7.2 cfs
V_{100}= 4.1 fps
S = 0.0048
CAP= 7.4 cfs
PARTIAL FLOW



LINE 'D-3'

AS-BUILT FEBRUARY 2023
INFORMATION PROVIDED BY CONTRACTORS AND DEVELOPER (NOT FIELD VERIFIED)

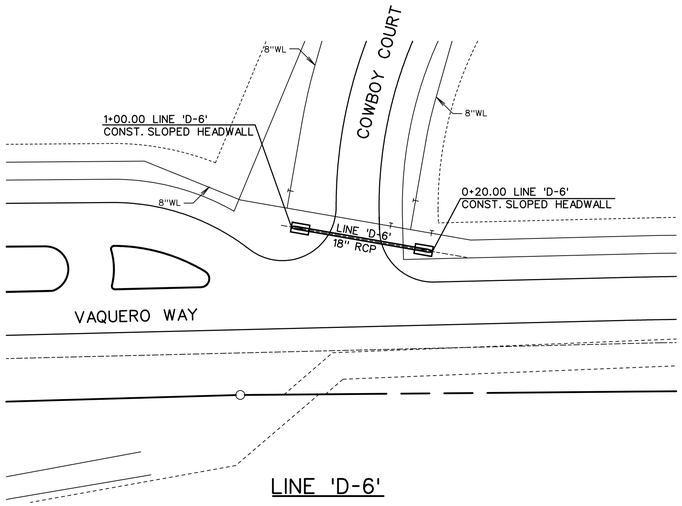
STATE OF TEXAS
BRANDON DAVIDSON
87682
REGISTERED PROFESSIONAL ENGINEER
02/06/2023

CORWIN ENGINEERING, INC.
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200
TBPE FIRM #5951

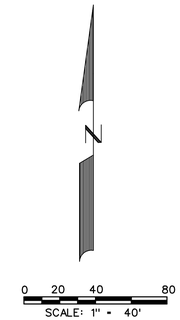
DEVELOPMENT PLANS FOR
BARRATT LAKE
ESTATES
LUCAS, TEXAS

STORM SEWER PLAN AND PROFILE
LINES 'D-1', 'D-2' AND 'D-3'

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 20013	DATE OCTOBER 2022	SCALE: HOR: 1"=40' VER: 1"=4'	14



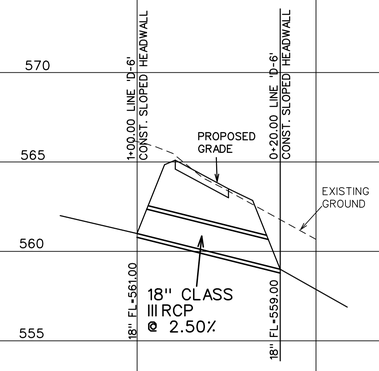
LINE 'D-6'



LEGEND

- (B) - BLOCK LABEL
- (19) - INLET NUMBER
- (1) - CURVE NUMBER
- SANITARY SEWER
- WATER
- PROPOSED STORM SEWER
- EXISTING STORM SEWER

18" RCP
Q_{100} = 2.6 cfs
V_{100} = 1.4 fps
S = 0.0006
CAP = 16.6 cfs
PARTIAL FLOW



LINE 'D-6'

AS-BUILT FEBRUARY 2023
INFORMATION PROVIDED BY CONTRACTORS AND DEVELOPER (NOT FIELD VERIFIED)

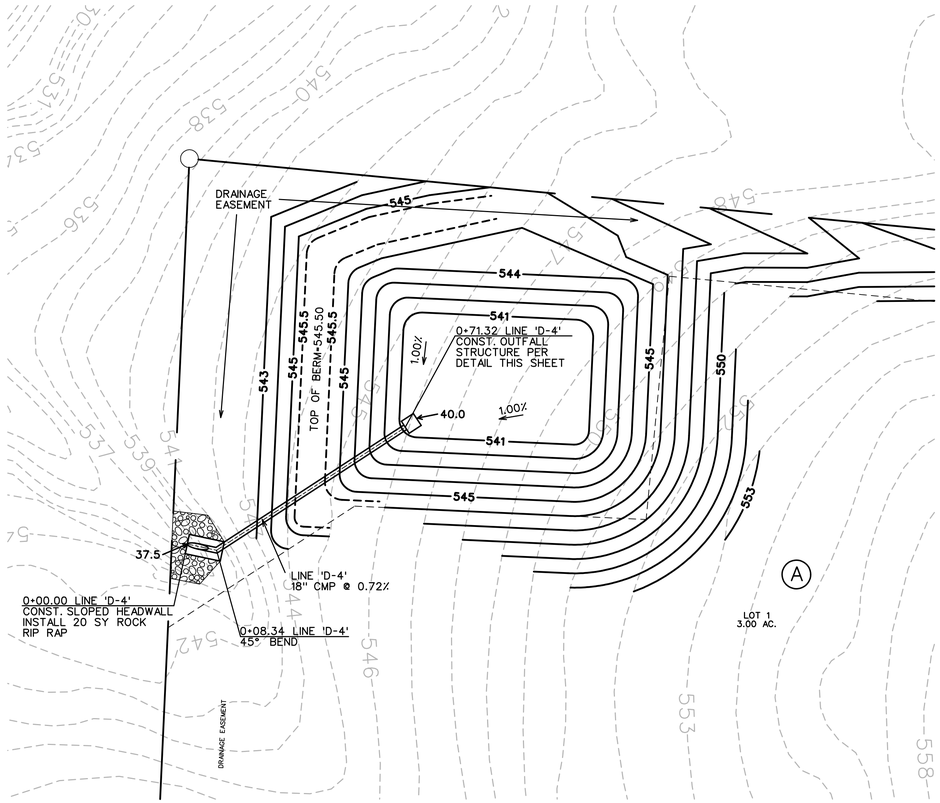
STATE OF TEXAS
BRANDON DAVIDSON
87682
REGISTERED PROFESSIONAL ENGINEER
02/06/2023

CORWIN ENGINEERING, INC.
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200
TBPE FIRM #5951

DEVELOPMENT PLANS FOR
BARRATT LAKE
ESTATES
LUCAS, TEXAS

STORM SEWER PLAN AND PROFILE
LINE 'D-6'

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 20013	DATE OCTOBER 2022	SCALE: HOR: 1"=40' VER: 1"=4'	15



Stage-Discharge Table Opening #1 - 0.7' w x 0.5' h opening Opening #2 2' Weir @ 544.35

		Orifice 1		Weir	Depth of Flow	Weir	Total	Allowable	Above	
Stage	H	Area	Discharge	Length	Over Weir	Discharge	Discharge	Discharge	(Below)	
540.00	0	0	0				0.0			
541.00	0.75	0.35	1.5				1.5			
542.00	1.75	0.35	2.2				2.2			
542.75	2.50	0.35	2.7				2.7	**2.7**	(0.0)	**2-year**
543.00	2.75	0.35	2.8				2.8			
543.26	3.01	0.35	2.9				2.9	**3.3**	(0.4)	**5-year**
544.00	3.75	0.35	3.3				3.3			
543.95	3.70	0.35	3.2				3.2	**4.3**	(1.1)	**25-year**
544.48	4.23	0.35	3.5	**12.0**	**0.13**	**1.9**	5.3	**5.3**	**0.0**	**100-year**
545.00	4.75	0.35	3.7	**12.0**	**0.65**	**20.9**	24.6			
546.00	5.75	0.35	4.0	**12.0**	**1.65**	**84.7**	88.7			

Elevation-Storage Table

	Volume
Elevation	(cf)
540	0
541	917
542	3131
543	6163
544	10128
545	15251

Elevation Calculations

Event	Maximum Release Rate	Storage Requirement	Occurs at Elevation
2-year	2.7	5411	542.75
5-year	3.3	7204	543.26
25-year	4.3	9878	543.95
100-year	5.3	12583	544.48

Northwest Detention Pond
2-Year Storm
Pre-Project Runoff Calculations

		Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Q - Undeveloped
	Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)
Existing Runoff	EX1-EX3	374962	8.61	0.40	15	4.00	13.9
Bypass	1,7	222299	5.10	0.55	15	4.00	11.2
						Allowed Release=	**2.7**

Post-Project Runoff Calculations

	Area	Area	Proposed Runoff	Tc - Existing	Rainfall Intensity	Post Developm	Difference between Pre and
Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)	Post Development Conditions
2,8	143802	3.30	0.55	15	4.00	7.3	
						7.3	**4.6**

5-Year Storm
Pre-Project Runoff Calculations

		Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Q - Undeveloped
	Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)
Existing Runoff	EX1-EX3	374962	8.61	0.40	15	4.91	17.1
Bypass	1,7	222299	5.10	0.55	15	4.91	13.8
						Allowed Release=	**3.3**

Post-Project Runoff Calculations

	Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Post Developm	Difference between Pre and
Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)	Post Development Conditions
2,8	143802	3.30	0.55	15	4.91	8.9	
						8.9	**5.6**

25-Year Storm
Pre-Project Runoff Calculations

		Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Q - Undeveloped
	Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)
Existing Runoff	EX1-EX3	374962	8.61	0.40	15	6.42	22.3
Bypass	1,7	222299	5.10	0.55	15	6.42	18.0
						Allowed Release=	**4.3**

Post-Project Runoff Calculations

	Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Post Developm	Difference between Pre and
Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)	Post Development Conditions
2,8	143802	3.30	0.55	15	6.42	11.7	
						11.7	**7.3**

100-Year Storm
Pre-Project Runoff Calculations

		Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Q - Undeveloped
	Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)
Existing Runoff	EX1-EX3	374962	8.61	0.40	15	7.86	27.3
Bypass	1,7	222299	5.10	0.55	15	7.86	22.1
						Allowed Release=	**5.3**

Post-Project Runoff Calculations

	Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Post Developm	Difference between Pre and
Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)	Post Development Conditions
2,8	143802	3.30	0.55	15	7.86	14.3	
						14.3	**9.0**

2 Year								Inflow	Outflow	Storage	Storage	
Storm	Inflow	Area	Future	Future	Future	Rainfall	Inflow	Volume	Volume	Volume	Volume	Outflow
Duration	Duration	(AC.)	"C"	"Kf"	"CA"	intensity	(cfs)	(cubic ft.)	(cubic ft.)	(cubic ft.)	(acre-ft.)	(cfs)
10	25	3.30	0.55	1.00	1.82	4.82	8.7	5248	2020	**3228**	**0.07**	2.7
20	35	3.30	0.55	1.00	1.82	3.44	6.2	7488	2827	**4661**	**0.11**	2.7
30	45	3.30	0.55	1.00	1.82	2.71	4.9	8867	3635	**5232**	**0.12**	2.7
40	55	3.30	0.55	1.00	1.82	2.26	4.1	9854	4443	**5411**	**0.12**	2.7
50	65	3.30	0.55	1.00	1.82	1.95	3.5	10620	5251	**5369**	**0.12**	2.7
60	75	3.30	0.55	1.00	1.82	1.72	3.1	11247	6059	**5188**	**0.12**	2.7
70	85	3.30	0.55	1.00	1.82	1.54	2.8	11778	6866	**4911**	**0.11**	2.7
80	95	3.30	0.55	1.00	1.82	1.40	2.5	12238	7674	**4564**	**0.10**	2.7

Maximum Storage Required 5411

5 Year								Inflow	Outflow	Storage	Storage	
Storm	Inflow	Area	Future	Future	Future	Rainfall	Inflow	Volume	Volume	Volume	Volume	Outflow
Duration	Duration	(AC.)	"C"	"Kf"	"CA"	intensity	(cfs)	(cubic ft.)	(cubic ft.)	(cubic ft.)	(acre-ft.)	(cfs)
10	25	3.30	0.55	1.00	1.82	5.82	10.6	6337	2483	**3854**	**0.09**	3.3
20	35	3.30	0.55	1.00	1.82	4.28	7.8	9321	3476	**5845**	**0.13**	3.3
30	45	3.30	0.55	1.00	1.82	3.43	6.2	11214	4469	**6744**	**0.15**	3.3
40	55	3.30	0.55	1.00	1.82	2.89	5.2	12586	5463	**7124**	**0.16**	3.3
50	65	3.30	0.55	1.00	1.82	2.51	4.6	13660	6456	**7204**	**0.17**	3.3
60	75	3.30	0.55	1.00	1.82	2.22	4.0	14542	7449	**7093**	**0.16**	3.3
70	85	3.30	0.55	1.00	1.82	2.01	3.6	15290	8442	**6848**	**0.16**	3.3
80	95	3.30	0.55	1.00	1.82	1.83	3.3	15941	9435	**6505**	**0.15**	3.3

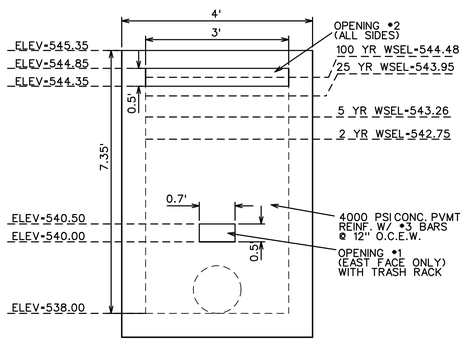
Maximum Storage Required 7204

25 Year								Inflow	Outflow	Storage	Storage	
Storm	Inflow	Area	Future	Future	Future	Rainfall	Inflow	Volume	Volume	Volume	Volume	Outflow
Duration	Duration	(AC.)	"C"	"Kf"	"CA"	intensity	(cfs)	(cubic ft.)	(cubic ft.)	(cubic ft.)	(acre-ft.)	(cfs)
10	25	3.30	0.55	1.00	1.82	7.55	13.7	8226	3244	**4982**	**0.11**	4.3
20	35	3.30	0.55	1.00	1.82	5.62	10.2	12242	4541	**7701**	**0.18**	4.3
30	45	3.30	0.55	1.00	1.82	4.54	8.3	14853	5839	**9014**	**0.21**	4.3
40	55	3.30	0.55	1.00	1.82	3.85	7.0	16782	7137	**9645**	**0.22**	4.3
50	65	3.30	0.55	1.00	1.82	3.36	6.1	18313	8434	**9878**	**0.23**	4.3
60	75	3.30	0.55	1.00	1.82	3.00	5.4	19584	9732	**9853**	**0.23**	4.3
70	85	3.30	0.55	1.00	1.82	2.71	4.9	20674	11029	**9645**	**0.22**	4.3
80	95	3.30	0.55	1.00	1.82	2.48	4.5	21630	12327	**9304**	**0.21**	4.3

Maximum Storage Required 9878

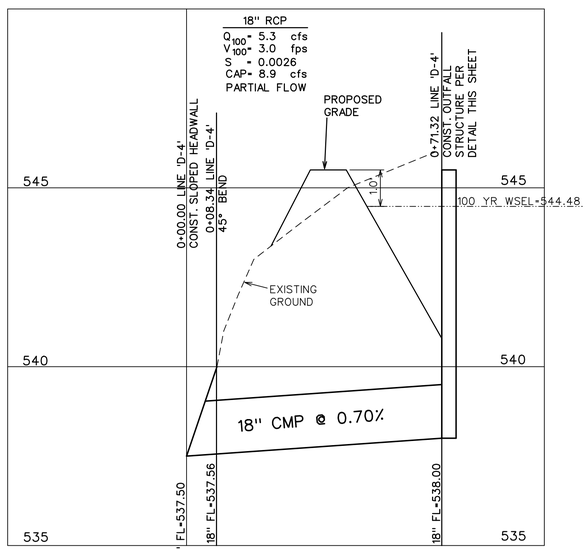
100 Year								Inflow	Outflow	Storage	Storage	
Storm	Inflow	Area	Future	Future	Future	Rainfall	Inflow	Volume	Volume	Volume	Volume	Outflow
Duration	Duration	(AC.)	"C"	"Kf"	"CA"	intensity	(cfs)	(cubic ft.)	(cubic ft.)	(cubic ft.)	(acre-ft.)	(cfs)
10	25	3.30	0.55	1.00	1.82	9.20	16.7	10017	3969	**6048**	**0.14**	5.3
20	35	3.30	0.55	1.00	1.82	6.90	12.5	15036	5556	**9479**	**0.22**	5.3
30	45	3.30	0.55	1.00	1.82	5.62	10.2	18354	7144	**11210**	**0.26**	5.3
40	55	3.30	0.55	1.00	1.82	4.78	8.7	20835	8732	**12104**	**0.28**	5.3
50	65	3.30	0.55	1.00	1.82	4.19	7.6	22825	10319	**12505**	**0.29**	5.3
60	75	3.30	0.55	1.00	1.82	3.75	6.8	24490	11907	**12583**	**0.29**	5.3
70	85	3.30	0.55	1.00	1.82	3.40	6.2	25928	13494	**12433**	**0.29**	5.3
80	95	3.30	0.55	1.00	1.82	3.12	5.7	27195	15082	**12113**	**0.28**	5.3

Maximum Storage Required 12583



NORTHEAST FACE

SPECIAL INLET OPENINGS DETAIL
N.T.S.



LINE 'D-4'

AS-BUILT FEBRUARY 2023
INFORMATION PROVIDED BY
CONTRACTORS AND DEVELOPER
(NOT FIELD VERIFIED)

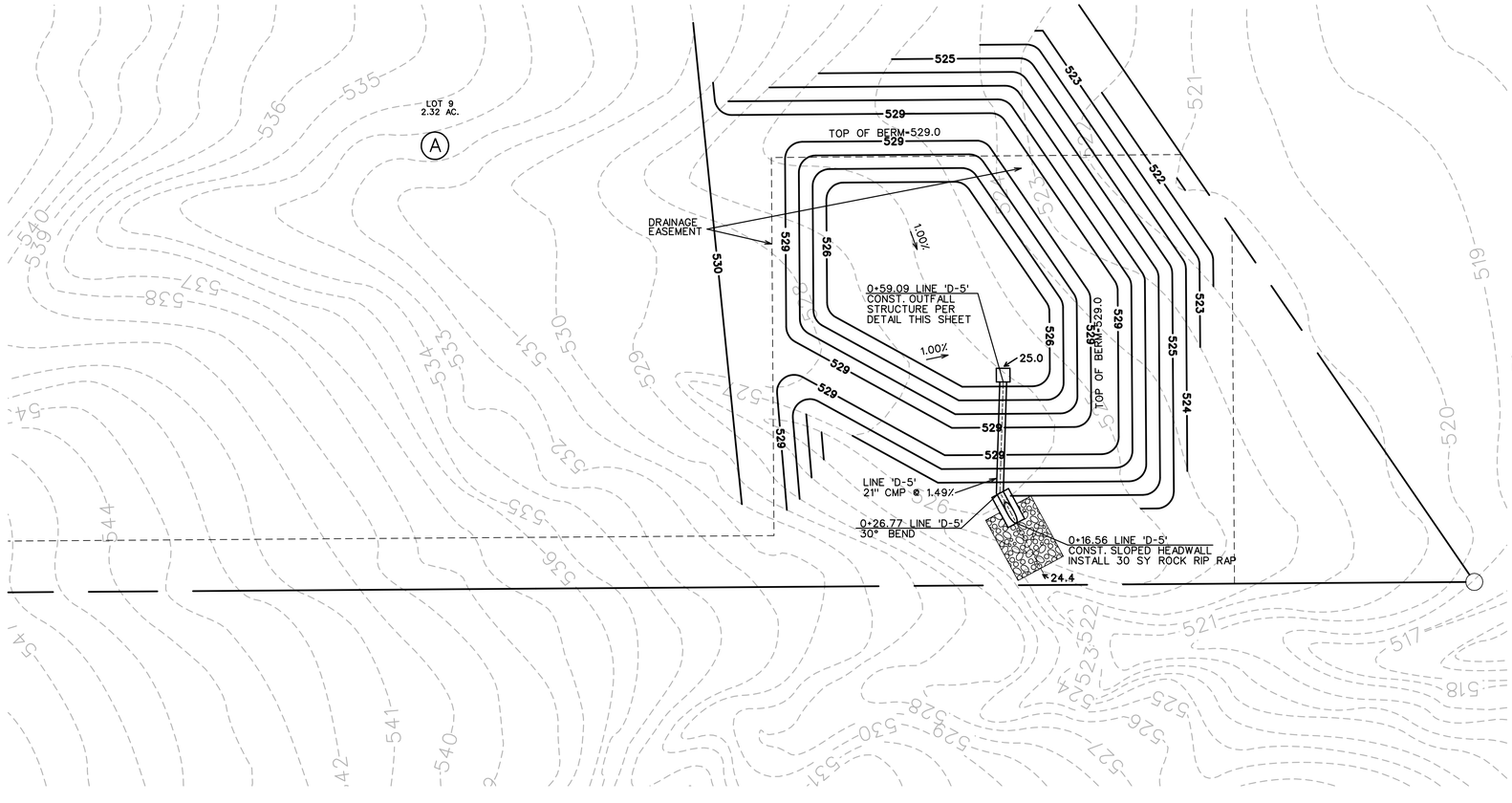
STATE OF TEXAS
BRANDON DAVIDSON
87682
REGISTERED
PROFESSIONAL ENGINEER
02/06/2023

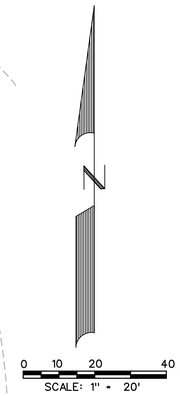
CORWIN ENGINEERING, INC.
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200
TBPE FIRM #5951

DEVELOPMENT PLANS FOR
BARRATT LAKE
ESTATES
LUCAS, TEXAS

NORTHWEST DETENTION POND PLAN

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 20013	DATE OCTOBER 2022	SCALE: 1"=20'	16





Northeast Detention Pond
2-Year Storm
Pre-Project Runoff Calculations

	Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Q - Undeveloped
Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)
Existing Runoff EX7-EX8	243442	5.59	0.35	15	4.00	7.9
					Allowed Release=	**7.9**

Post-Project Runoff Calculations

	Area	Area	Proposed Runoff	Tc - Existing	Rainfall Intensity	Post Developm	Difference between Pre and Post Development Conditions
Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)	
10	233322	5.36	0.55	15	4.00	11.8	
						11.8	**3.8**

5-Year Storm
Pre-Project Runoff Calculations

	Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Q - Undeveloped
Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)
Existing Runoff EX7-EX8	243442	5.59	0.35	15	4.91	9.7
					Allowed Release=	**9.7**

Post-Project Runoff Calculations

	Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Post Developm	Difference between Pre and Post Development Conditions
Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)	
10	233322	5.36	0.55	15	4.91	14.5	
						14.5	**4.7**

25-Year Storm
Pre-Project Runoff Calculations

	Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Q - Undeveloped
Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)
Existing Runoff EX7-EX8	243442	5.59	0.35	15	6.42	12.7
					Allowed Release=	**12.7**

Post-Project Runoff Calculations

	Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Post Developm	Difference between Pre and Post Development Conditions
Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)	
10	233322	5.36	0.55	15	6.42	18.9	
						18.9	**6.2**

100-Year Storm
Pre-Project Runoff Calculations

	Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Q - Undeveloped
Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)
Existing Runoff EX7-EX8	243442	5.59	0.35	15	7.86	15.6
					Allowed Release=	**15.6**

Post-Project Runoff Calculations

	Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Post Developm	Difference between Pre and Post Development Conditions
Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)	
10	233322	5.36	0.55	15	7.86	23.1	
						23.1	**7.6**

2 Year Storm Duration	Inflow Duration	Area (AC.)	Future "C"	Future "Kf"	Future "CA"	Rainfall intensity	Inflow (cfs)	Inflow Volume (cubic ft.)	Outflow Volume (cubic ft.)	Storage Volume (cubic ft.)	Storage Volume (acre-ft.)	Outflow (cfs)
10	25	5.36	0.55	1.00	2.95	4.82	14.2	8514	5946	**2568**	**0.06**	7.9
20	35	5.36	0.55	1.00	2.95	3.44	10.1	12150	8325	**3825**	**0.09**	7.9
30	45	5.36	0.55	1.00	2.95	2.71	8.0	14387	10704	**3684**	**0.08**	7.9
40	55	5.36	0.55	1.00	2.95	2.26	6.7	15988	13082	**2906**	**0.07**	7.9
50	65	5.36	0.55	1.00	2.95	1.95	5.7	17231	15461	**1770**	**0.04**	7.9
									Maximum Storage Required	3825		

5 Year Storm Duration	Inflow Duration	Area (AC.)	Future "C"	Future "Kf"	Future "CA"	Rainfall intensity	Inflow (cfs)	Inflow Volume (cubic ft.)	Outflow Volume (cubic ft.)	Storage Volume (cubic ft.)	Storage Volume (acre-ft.)	Outflow (cfs)
10	25	5.36	0.55	1.00	2.95	5.82	17.1	10282	7311	**2971**	**0.07**	9.7
20	35	5.36	0.55	1.00	2.95	4.28	12.6	15123	10236	**4888**	**0.11**	9.7
30	45	5.36	0.55	1.00	2.95	3.43	10.1	18194	13160	**5034**	**0.12**	9.7
40	55	5.36	0.55	1.00	2.95	2.89	8.5	20421	16084	**4337**	**0.10**	9.7
50	65	5.36	0.55	1.00	2.95	2.51	7.4	22164	19009	**3155**	**0.07**	9.7
									Maximum Storage Required	5034		

25 Year Storm Duration	Inflow Duration	Area (AC.)	Future "C"	Future "Kf"	Future "CA"	Rainfall intensity	Inflow (cfs)	Inflow Volume (cubic ft.)	Outflow Volume (cubic ft.)	Storage Volume (cubic ft.)	Storage Volume (acre-ft.)	Outflow (cfs)
10	25	5.36	0.55	1.00	2.95	7.55	22.2	13346	9552	**3795**	**0.09**	12.7
20	35	5.36	0.55	1.00	2.95	5.62	16.6	19863	13372	**6491**	**0.15**	12.7
30	45	5.36	0.55	1.00	2.95	4.54	13.4	24100	17193	**6907**	**0.16**	12.7
40	55	5.36	0.55	1.00	2.95	3.85	11.3	27229	21013	**6216**	**0.14**	12.7
50	65	5.36	0.55	1.00	2.95	3.36	9.9	29713	24834	**4879**	**0.11**	12.7
									Maximum Storage Required	6907		

100 Year Storm Duration	Inflow Duration	Area (AC.)	Future "C"	Future "Kf"	Future "CA"	Rainfall intensity	Inflow (cfs)	Inflow Volume (cubic ft.)	Outflow Volume (cubic ft.)	Storage Volume (cubic ft.)	Storage Volume (acre-ft.)	Outflow (cfs)
10	25	5.36	0.55	1.00	2.95	9.20	27.1	16253	11686	**4567**	**0.10**	15.6
20	35	5.36	0.55	1.00	2.95	6.90	20.3	24396	16361	**8035**	**0.18**	15.6
30	45	5.36	0.55	1.00	2.95	5.62	16.5	29779	21035	**8744**	**0.20**	15.6
40	55	5.36	0.55	1.00	2.95	4.78	14.1	33806	25710	**8096**	**0.19**	15.6
50	65	5.36	0.55	1.00	2.95	4.19	12.3	37033	30384	**6649**	**0.15**	15.6
									Maximum Storage Required	8744		

Elevation-Storage Table

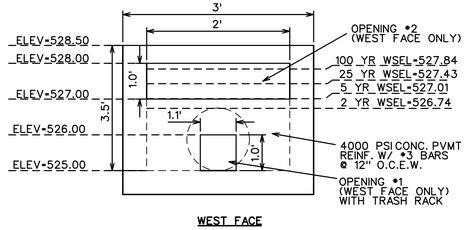
Elevation	Volume (cf)
525	0
526	1506
527	4979
528	9437
529	14996

Elevation Calculations

Event	Maximum Release Rate	Storage Requirement	Occurs at Elevation
2-year	2.7	3825	526.74
5-year	3.3	5034	527.01
25-year	4.3	6907	527.43
100-year	13.2	8744	527.84

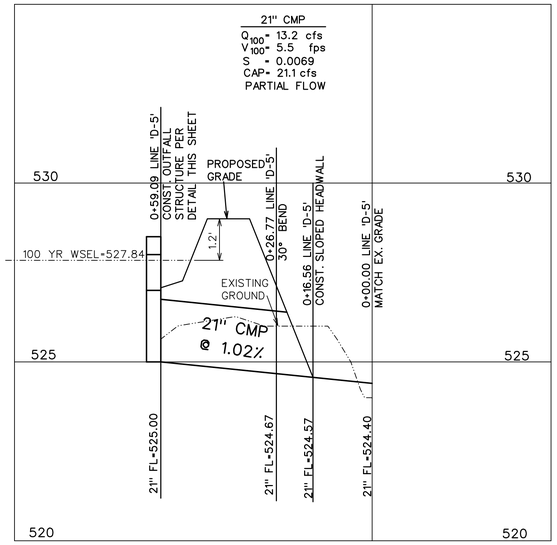
Stage-Discharge Table Opening #1 - 1.1' w x 1.0' h opening — 2' Weir @ 527

	Orifice 1			Weir	Depth of Flow	Weir	Total	Allowable	Above	
Stage	H	Area	Discharge	Length	Over Weir	Discharge	Discharge	Discharge	(Below)	
525.00	0	0	0				0.0			
526.00	0.50	1.10	3.7				3.7			
526.74	1.24	1.10	5.9				5.9	**7.9**	(2.0)	**2-year**
527.00	1.50	1.10	6.5				6.5			
527.01	1.51	1.10	6.5				6.5	**9.7**	(3.2)	**5-year**
527.43	1.93	1.10	7.4	**2.0**	**0.43**	**1.9**	9.2	**12.7**	(3.5)	**25-year**
527.84	2.34	1.10	8.1	**2.0**	**0.84**	**5.1**	13.2	**15.6**	(2.4)	**100-year**
528.00	2.50	1.10	8.4	**2.0**	**1.00**	**6.7**	15.0			
529.00	3.50	1.10	9.9	**2.0**	**2.00**	**18.8**	28.7			



WEST FACE

SPECIAL INLET OPENINGS DETAIL
N.T.S.



LINE 'D-5'

AS-BUILT FEBRUARY 2023
INFORMATION PROVIDED BY CONTRACTORS AND DEVELOPER (NOT FIELD VERIFIED)

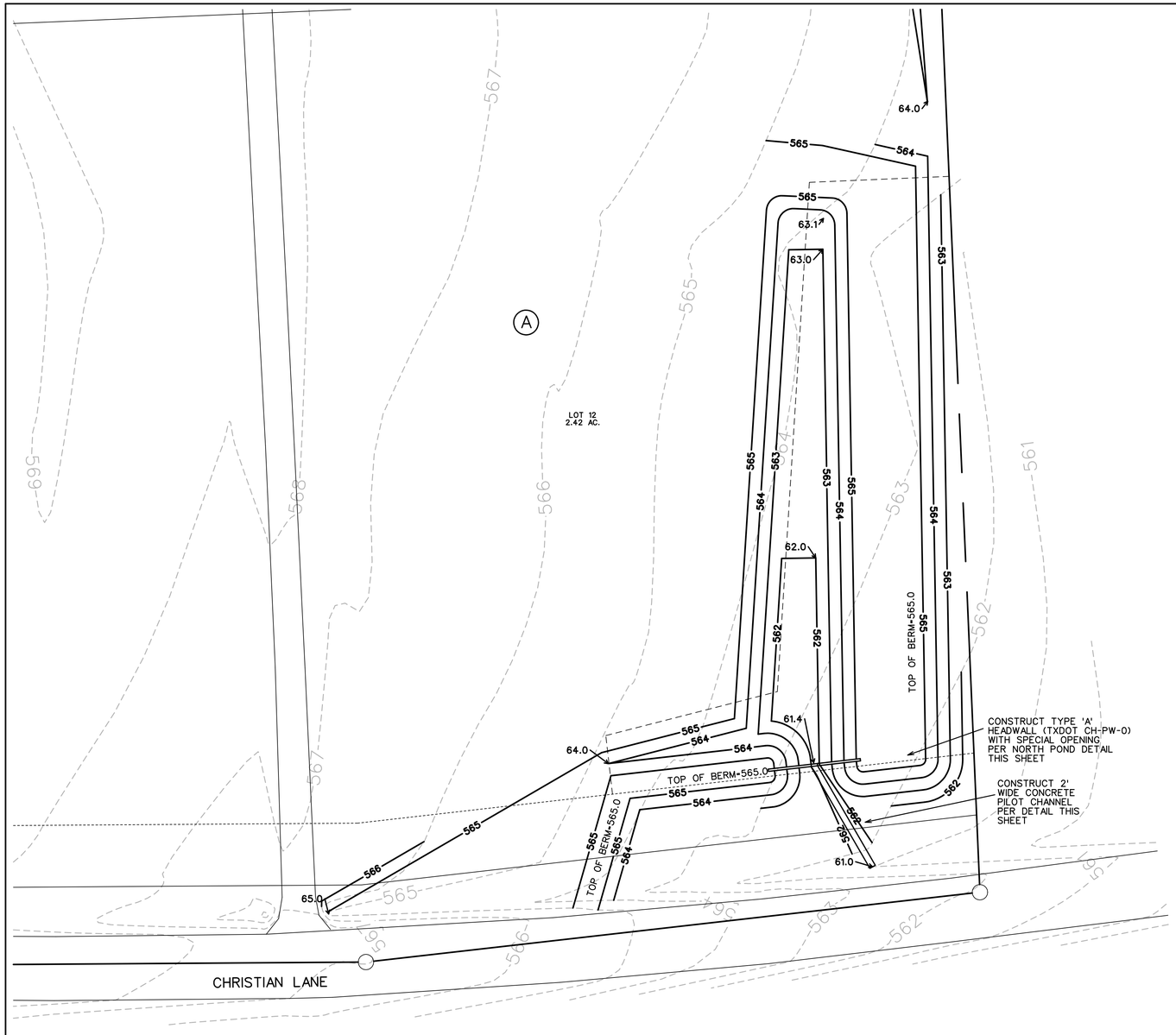
STATE OF TEXAS
BRANDON DAVIDSON
87682
REGISTERED PROFESSIONAL ENGINEER
02/06/2023

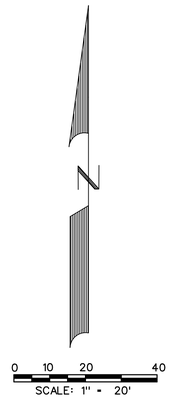
CORWIN ENGINEERING, INC.
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200
TBPE FIRM #5951

DEVELOPMENT PLANS FOR
BARRATT LAKE ESTATES
LUCAS, TEXAS

NORTHEAST DETENTION POND PLAN

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 20013	DATE OCTOBER 2022	SCALE: 1"=20'	17





Southeast Detention Pond
2-Year Storm
Pre-Project Runoff Calculations

		Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Q - Undeveloped
	Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)
Existing Runoff	EX9-EX10	215714	2.52	0.37	15	4.00	3.7
						Allowed Release=	**3.7**

Post-Project Runoff Calculations

	Area	Area	Proposed Runoff	Tc - Existing	Rainfall Intensity	Post Developm	Difference between Pre and
Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)	Post Development Conditions
11	89992	2.07	0.55	15	4.00	4.5	
						4.5	**0.8**

5-Year Storm
Pre-Project Runoff Calculations

		Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Q - Undeveloped
	Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)
Existing Runoff	EX9-EX10	215714	2.52	0.37	15	4.91	4.6
						Allowed Release=	**4.6**

Post-Project Runoff Calculations

	Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Post Developm	Difference between Pre and
Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)	Post Development Conditions
11	89992	2.07	0.55	15	4.91	5.6	
						5.6	**1.0**

25-Year Storm
Pre-Project Runoff Calculations

		Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Q - Undeveloped
	Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)
Existing Runoff	EX9-EX10	215714	2.52	0.37	15	6.42	5.9
						Allowed Release=	**5.9**

Post-Project Runoff Calculations

	Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Post Developm	Difference between Pre and
Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)	Post Development Conditions
11	89992	2.07	0.55	15	6.42	7.3	
						7.3	**1.3**

100-Year Storm
Pre-Project Runoff Calculations

		Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Q - Undeveloped
	Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)
Existing Runoff	EX9-EX10	215714	2.52	0.37	15	7.86	7.3
						Allowed Release=	**7.3**

Post-Project Runoff Calculations

	Area	Area	Existing Runoff	Tc - Existing	Rainfall Intensity	Post Developm	Difference between Pre and
Area #	(sf)	(acres)	Coefficient	(min)	(in/hr)	(cfs)	Post Development Conditions
11	89992	2.07	0.55	15	7.86	8.9	
						8.9	**1.6**

2 Year								Inflow	Outflow	Storage	Storage	
Storm	Inflow	Area	Future	Future	Future	Rainfall	Inflow	Volume	Volume	Volume	Volume	Outflow
Duration	Duration	(AC.)	"C"	"Kf"	"CA"	intensity	(cfs)	(cubic ft.)	(cubic ft.)	(cubic ft.)	(acre-ft.)	(cfs)
10	25	2.07	0.55	1.00	1.14	4.82	5.5	3284	2262	**1022**	**0.02**	3.0
20	35	2.07	0.55	1.00	1.14	3.44	3.9	4686	3167	**1519**	**0.03**	3.0
30	45	2.07	0.55	1.00	1.14	2.71	3.1	5549	4072	**1477**	**0.03**	3.0
40	55	2.07	0.55	1.00	1.14	2.26	2.6	6166	4977	**1190**	**0.03**	3.0
50	65	2.07	0.55	1.00	1.14	1.95	2.2	6646	5882	**764**	**0.02**	3.0
								Maximum Storage Required		1519		

5 Year								Inflow	Outflow	Storage	Storage	
Storm	Inflow	Area	Future	Future	Future	Rainfall	Inflow	Volume	Volume	Volume	Volume	Outflow
Duration	Duration	(AC.)	"C"	"Kf"	"CA"	intensity	(cfs)	(cubic ft.)	(cubic ft.)	(cubic ft.)	(acre-ft.)	(cfs)
10	25	2.07	0.55	1.00	1.14	5.82	6.6	3966	2600	**1366**	**0.03**	3.5
20	35	2.07	0.55	1.00	1.14	4.28	4.9	5833	3640	**2193**	**0.05**	3.5
30	45	2.07	0.55	1.00	1.14	3.43	3.9	7018	4680	**2337**	**0.05**	3.5
40	55	2.07	0.55	1.00	1.14	2.89	3.3	7877	5720	**2156**	**0.05**	3.5
50	65	2.07	0.55	1.00	1.14	2.51	2.8	8549	6760	**1788**	**0.04**	3.5
								Maximum Storage Required		2337		

25 Year								Inflow	Outflow	Storage	Storage	
Storm	Inflow	Area	Future	Future	Future	Rainfall	Inflow	Volume	Volume	Volume	Volume	Outflow
Duration	Duration	(AC.)	"C"	"Kf"	"CA"	intensity	(cfs)	(cubic ft.)	(cubic ft.)	(cubic ft.)	(acre-ft.)	(cfs)
10	25	2.07	0.55	1.00	1.14	7.55	8.6	5148	3143	**2005**	**0.05**	4.2
20	35	2.07	0.55	1.00	1.14	5.62	6.4	7661	4400	**3262**	**0.07**	4.2
30	45	2.07	0.55	1.00	1.14	4.54	5.2	9295	5657	**3639**	**0.08**	4.2
40	55	2.07	0.55	1.00	1.14	3.85	4.4	10502	6914	**3588**	**0.08**	4.2
50	65	2.07	0.55	1.00	1.14	3.36	3.8	11460	8171	**3289**	**0.08**	4.2
								Maximum Storage Required		3639		

100 Year								Inflow	Outflow	Storage	Storage	
Storm	Inflow	Area	Future	Future	Future	Rainfall	Inflow	Volume	Volume	Volume	Volume	Outflow
Duration	Duration	(AC.)	"C"	"Kf"	"CA"	intensity	(cfs)	(cubic ft.)	(cubic ft.)	(cubic ft.)	(acre-ft.)	(cfs)
10	25	2.07	0.55	1.00	1.14	9.20	10.4	6269	3965	**2303**	**0.05**	5.3
20	35	2.07	0.55	1.00	1.14	6.90	7.8	9409	5552	**3858**	**0.09**	5.3
30	45	2.07	0.55	1.00	1.14	5.62	6.4	11486	7138	**4348**	**0.10**	5.3
40	55	2.07	0.55	1.00	1.14	4.78	5.4	13039	8724	**4315**	**0.10**	5.3
50	65	2.07	0.55	1.00	1.14	4.19	4.8	14284	10310	**3974**	**0.09**	5.3
								Maximum Storage Required		4348		

Elevation-Storage Table

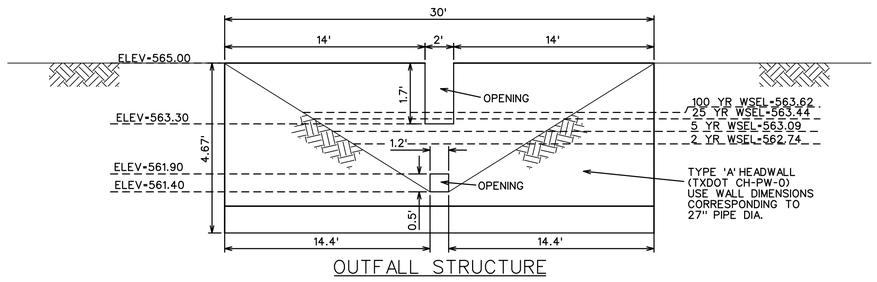
	Volume
Elevation	(cf)
561.4	0
562	193
563	1996
564	5760
565	11497

Elevation Calculations

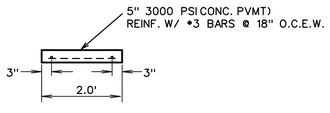
Event	Maximum Release Rate	Storage Requirement	Occurs at Elevation
2-year	2.7	1519	562.74
5-year	3.3	2337	563.09
25-year	4.3	3639	563.44
100-year	7.3	4348	563.62

Stage-Discharge Table Opening #1 - 1.2' w x 0.5' h opening 2' Weir @ Elev 563.3

	Orifice 1			Weir	Depth of Flow	Weir	Total	Allowable	Above	
Stage	H	Area	Discharge	Length	Over Weir	Discharge	Discharge	Discharge	(Below)	
561.40	0	0	0				0.0			
562.00	0.35	0.60	1.7				1.7			
562.74	1.09	0.60	3.0				3.0	**3.7**	(0.7)	**2-year**
563.09	1.44	0.60	3.5				3.5	**4.6**	(1.1)	**5-year**
563.00	1.35	0.60	3.4				3.4			
563.44	1.78	0.60	3.9	**2.0**	**0.13**	**0.3**	4.2	**5.9**	(1.8)	**25-year**
563.62	1.97	0.60	4.1	**2.0**	**0.32**	**1.2**	5.3	**7.3**	(2.0)	**100-year**
564.00	2.35	0.60	4.4	2.0	0.70	3.9	8.3			
565.00	3.35	0.60	5.3	2.0	1.70	14.8	20.0			



OUTFALL STRUCTURE



PILOT CHANNEL DETAIL

AS-BUILT FEBRUARY 2023
INFORMATION PROVIDED BY CONTRACTORS AND DEVELOPER (NOT FIELD VERIFIED)

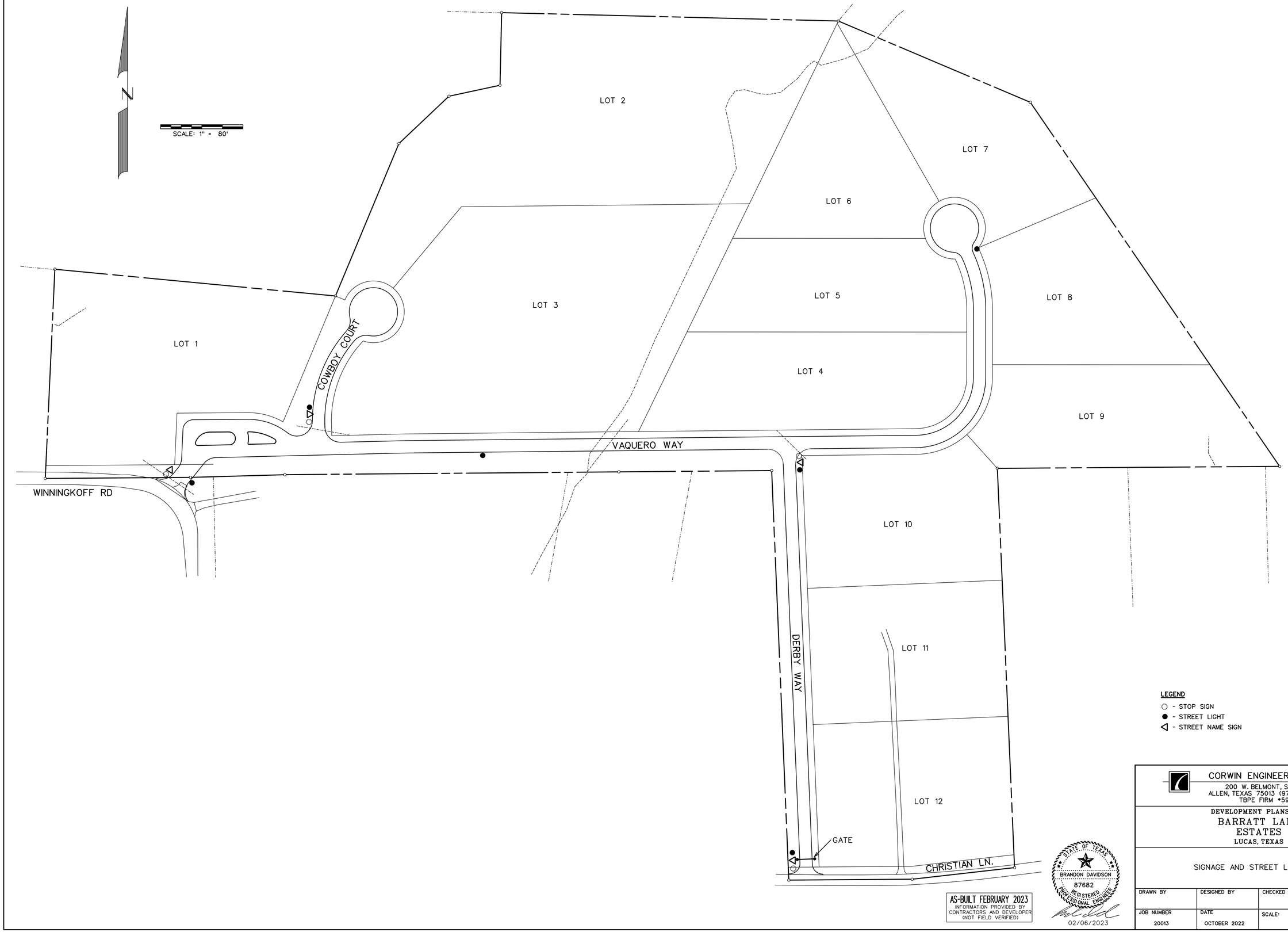
STATE OF TEXAS
BRANDON DAVIDSON
87682
REGISTERED PROFESSIONAL ENGINEER
02/06/2023

CORWIN ENGINEERING, INC.
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200
TBPE FIRM #5951

DEVELOPMENT PLANS FOR
BARRATT LAKE ESTATES
LUCAS, TEXAS

SOUTHEAST DETENTION POND PLAN

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 20013	DATE OCTOBER 2022	SCALE: 1"=20'	18



LEGEND

○ - STOP SIGN
● - STREET LIGHT
◁ - STREET NAME SIGN

AS-BUILT FEBRUARY 2023
INFORMATION PROVIDED BY CONTRACTORS AND DEVELOPER (NOT FIELD VERIFIED)

STATE OF TEXAS
BRANDON DAVIDSON
87682
REGISTERED PROFESSIONAL ENGINEER
02/06/2023

CORWIN ENGINEERING, INC.
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200
TBPE FIRM #5951

DEVELOPMENT PLANS FOR
BARRATT LAKE ESTATES
LUCAS, TEXAS

SIGNAGE AND STREET LIGHT PLAN

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 20013	DATE OCTOBER 2022	SCALE: 1"=80'	19

N

SCALE: 1" = 80'

NOTES:

1. GRADING CONTRACTOR TO INSTALL TEMPORARY STABILIZED ENTRANCE.

2. INSTALL SILT FENCE AS SHOWN, (TS-600 POLY FELT) PER C.O.G. SPECIFICATIONS.

3. PERFORM GRADING.

4. AFTER GRADING INSTALL SILT FENCE DITCH PROTECTION.

5. PERFORM UTILITY CONSTRUCTION.

6. PAVING CONTRACTOR SHALL REMOVE TEMPORARY STABILIZED ENTRANCE.

7. PRIOR TO CITY ACCEPTANCE THE PAVING CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY MUD OR SILT WHICH COLLECTS ON THE EXISTING AND NEW PAVEMENT.

8. ALL DISTURBED AREAS TO BE VEGETATED PRIOR TO FINAL ACCEPTANCE.

LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10
LOT 11

SUGGESTED EQUIPMENT STAGING AREA

CONCRETE WASHOUT

COWBOY COURT

VAQUERO WAY

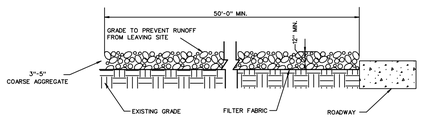
DERBY DRIVE

CHRISTIAN LN.

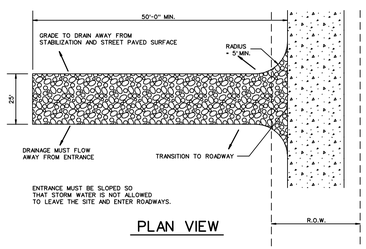
WINNINGKOFF RD

STABILIZED ENTRANCE

ROCK CHECK DAM

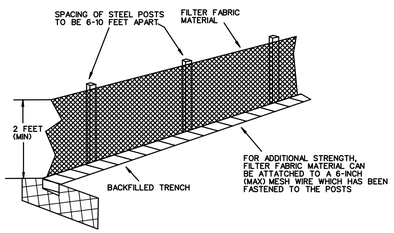


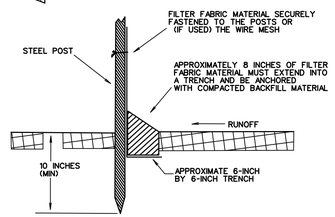
PROFILE



PLAN VIEW

STABILIZED CONSTRUCTION ENTRANCE DETAIL





FILTER FABRIC FENCE DETAIL

LEGEND

SILT FENCE (BEFORE CONSTRUCTION) ---------

SILT FENCE DITCH PROTECTION (AFTER GRADING) 

AS-BUILT FEBRUARY 2023
INFORMATION PROVIDED BY CONTRACTORS AND DEVELOPER (NOT FIELD VERIFIED)

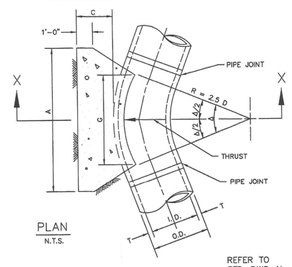
STATE OF TEXAS
BRANDON DAVIDSON
87682
REGISTERED PROFESSIONAL ENGINEER
02/06/2023

CORWIN ENGINEERING, INC.
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200
TBPE FIRM #5951

DEVELOPMENT PLANS FOR
BARRATT LAKE ESTATES
LUCAS, TEXAS

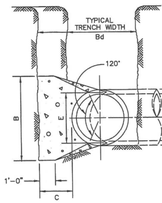
EROSION CONTROL PLAN

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
			20
JOB NUMBER	DATE	SCALE:	
20013	OCTOBER 2022	1"=80'	



PLAN
N.T.S.

REFER TO
STD. DWG. No. 4040
FOR GENERAL NOTES.



SECTION X–X
N.T.S.

HORIZONTAL THRUST BLOCK AT PIPE BEND

North Central Texas Council of Governments

STANDARD SPECIFICATION REFERENCE: 502.4
DATE: OCT. '04
STANDARD DRAWING NO.: 4010A

I.D. (IN.)	T (IN.)	Δ = 11.25° C (FT.)	Δ = 22.50° C (FT.)	E (FT.)
4,6,8	0.4	1.5	1.5	0.9
10,12	0.5	1.5	1.5	1.2
16,18	0.6	1.5	1.5	1.6
20	0.7	1.5	1.5	1.8
24	0.9	1.5	1.5	2.1
30	2.9	1.5	1.9	2.6
36	4.5	1.5	2.3	3.3
42	5.1	53.8	8.0	7.0	5.1	5.5	5.0	2.5	42	7.5	79.6	11.5	7.0	8.1	8.0	5.0	4.2
48	5.8	70.3	9.0	8.0	7.4	6.0	6.0	3.7	48	8.6	104.0	13.0	8.0	11.9	9.0	6.0	6.3
54	6.5	89.0	10.0	9.0	10.3	7.0	6.5	5.3	54	9.7	131.5	15.0	9.0	17.1	10.5	6.5	8.9
60	7.3	110.0	11.0	10.0	13.9	7.5	7.5	7.3	60	10.7	162.4	16.5	10.0	23.1	11.0	7.5	12.0
66	8.0	132.9	12.5	11.0	18.9	8.5	8.0	9.6	66	11.8	196.5	18.0	11.0	30.1	12.0	8.5	16.2
72	8.7	158.2	13.5	12.0	24.0	9.0	9.0	12.3	72	12.9	233.9	19.5	12.0	38.6	14.0	8.5	20.7
78	9.4	185.6	14.5	13.0	30.0	10.0	9.5	15.6	78	13.9	274.5	21.5	13.0	49.8	14.5	9.5	25.9
84	10.1	215.3	15.5	14.0	37.1	10.5	10.5	19.5	84	15.0	318.4	23.0	14.0	61.2	15.5	10.5	32.6
90	10.9	247.1	16.5	15.0	45.0	11.5	11.0	23.9	90	16.1	365.5	24.5	15.0	74.5	17.5	10.5	39.6
96	11.6	281.2	18.0	16.0	55.5	12.5	11.5	28.9	96	17.1	415.6	26.0	16.0	89.5	18.5	11.5	48.5

	Δ = 11.25°								Δ = 22.50°							
			EARTH			ROCK					EARTH			ROCK		
I.D. (IN.)	G (FT.)	THRUST (TONS)	A (FT.)	B (FT.)	VOL. (C.Y.)	A (FT.)	B (FT.)	VOL. (C.Y.)	I.D. (IN.)	G (FT.)	THRUST (TONS)	A	B	VOL. (C.Y.)	A	B	VOL. (C.Y.)
4,6,8	0.4	1.0	1.0	1.5	0.1	1.0	1.0	0.1	4,6,8	0.8	2.0	1.5	1.5	0.1	1.0	1.0	0.1
10,12	0.6	2.2	1.5	1.5	0.1	1.0	1.5	0.1	10,12	1.1	4.4	2.0	2.5	0.3	1.5	1.5	0.1
16,18	0.8	5.0	2.0	2.5	0.3	1.5	2.0	0.2	16,18	1.6	9.9	3.0	3.5	0.6	2.0	2.5	0.3
20	0.9	6.2	2.0	3.5	0.4	1.5	3.0	0.3	20	1.8	12.3	3.5	3.5	0.7	2.0	3.0	0.4
24	1.1	8.9	3.0	3.5	0.5	1.5	3.0	0.3	24	2.2	17.7	4.0	4.5	1.0	3.0	3.5	0.5
30	1.4	10.4	3.0	3.5	0.6	2.0	3.5	0.4	30	2.7	20.7	5.0	4.5	1.5	3.0	4.0	0.8
36	1.7	15.0	3.5	4.5	0.9	2.0	4.0	0.5	36	3.3	29.8	5.5	5.5	2.3	4.0	4.0	1.3
42	1.9	20.4	4.5	5.0	1.5	2.5	5.0	0.8	42	3.8	40.5	7.0	6.0	3.9	4.5	5.0	2.1
48	2.2	26.6	4.5	6.0	2.0	2.5	6.0	1.1	48	4.4	52.9	8.0	7.0	5.7	4.5	6.0	2.8
54	2.5	33.7	6.0	6.0	3.0	3.0	6.0	1.4	54	4.9	67.0	9.0	8.0	8.0	6.0	6.0	4.1
60	2.7	41.6	6.0	7.0	3.8	3.0	7.0	1.8	60	5.5	82.7	9.5	9.0	10.6	6.0	7.0	5.3
66	3.0	50.3	6.5	8.0	5.1	3.5	8.0	2.7	66	6.0	100.1	10.5	10.0	14.1	6.5	8.0	7.2
72	3.3	59.9	7.5	8.0	6.3	4.0	8.0	3.3	72	6.6	119.1	11.0	11.0	17.6	7.5	8.0	9.1
78	3.6	70.2	8.0	9.0	8.1	4.0	9.0	3.9	78	7.1	139.8	12.0	12.0	22.5	8.0	9.0	11.7
84	3.8	81.5	8.5	10.0	10.3	4.5	10.0	5.3	84	7.6	162.1	13.0	12.5	27.2	8.5	10.0	14.8
90	4.1	93.5	9.5	10.0	12.2	5.0	10.0	6.3	90	8.2	186.1	14.0	13.5	33.7	9.5	10.0	17.7
96	4.4	106.4	10.0	11.0	15.0	5.0	11.0	7.4	96	8.7	211.7	15.0	14.5	41.2	10.0	11.0	21.8

TABLES OF DIMENSIONS AND QUANTITIES

HORIZONTAL THRUST BLOCK AT PIPE BEND

North Central Texas Council of Governments

STANDARD SPECIFICATION REFERENCE: 502.4
DATE: OCT. '04
STANDARD DRAWING NO.: 4010B

	Δ = 30°								Δ = 45°							
			EARTH			ROCK					EARTH			ROCK		
I.D. (IN.)	G (FT.)	THRUST (TONS)	A (FT.)	B (FT.)	VOL. (C.Y.)	A (FT.)	B (FT.)	VOL. (C.Y.)	I.D. (IN.)	G (FT.)	THRUST (TONS)	A (FT.)	B (FT.)	VOL. (C.Y.)	A (FT.)	B (FT.)	VOL. (C.Y.)
4,6,8	1.0	2.6	2.0	1.5	0.2	1.0	1.5	0.1	4,6,8	1.5	3.9	2.0	2.0	0.2	1.5	1.5	0.1
10,12	1.5	5.9	2.5	2.5	0.3	2.0	1.5	0.2	10,12	2.2	8.7	3.5	2.5	0.5	2.0	2.5	0.3
16,18	2.2	13.2	3.5	4.0	0.8	2.5	3.0	0.4	16,18	3.2	19.5	4.5	4.5	1.2	3.0	3.5	0.6
20	2.4	16.3	4.5	4.0	1.0	3.0	3.0	0.5	20	3.6	24.1	5.5	4.5	1.5	3.5	3.5	0.7
24	2.9	23.4	6.0	4.0	1.4	3.5	3.5	0.7	24	4.3	34.6	8.0	4.5	2.3	4.5	4.0	1.1
30	3.6	27.5	6.5	5.0	1.9	3.5	4.0	0.9	30	5.4	40.6	8.5	5.0	3.2	5.5	4.0	1.6
36	4.4	39.5	7.0	6.0	3.4	4.5	4.5	1.6	36	6.5	58.5	10.0	6.0	5.3	6.5	4.5	2.6
42	5.1	53.8	8.0	7.0	5.1	5.5	5.0	2.5	42	7.5	79.6	11.5	7.0	8.1	8.0	5.0	4.2
48	5.8	70.3	9.0	8.0	7.4	6.0	6.0	3.7	48	8.6	104.0	13.0	8.0	11.9	9.0	6.0	6.3
54	6.5	89.0	10.0	9.0	10.3	7.0	6.5	5.3	54	9.7	131.5	15.0	9.0	17.1	10.5	6.5	8.9
60	7.3	110.0	11.0	10.0	13.9	7.5	7.5	7.3	60	10.7	162.4	16.5	10.0	23.1	11.0	7.5	12.0
66	8.0	132.9	12.5	11.0	18.9	8.5	8.0	9.6	66	11.8	196.5	18.0	11.0	30.1	12.0	8.5	16.2
72	8.7	158.2	13.5	12.0	24.0	9.0	9.0	12.3	72	12.9	233.9	19.5	12.0	38.6	14.0	8.5	20.7
78	9.4	185.6	14.5	13.0	30.0	10.0	9.5	15.6	78	13.9	274.5	21.5	13.0	49.8	14.5	9.5	25.9
84	10.1	215.3	15.5	14.0	37.1	10.5	10.5	19.5	84	15.0	318.4	23.0	14.0	61.2	15.5	10.5	32.6
90	10.9	247.1	16.5	15.0	45.0	11.5	11.0	23.9	90	16.1	365.5	24.5	15.0	74.5	17.5	10.5	39.6
96	11.6	281.2	18.0	16.0	55.5	12.5	11.5	28.9	96	17.1	415.6	26.0	16.0	89.5	18.5	11.5	48.5

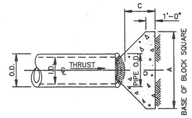
	Δ = 67.50°								Δ = 90°							
			EARTH			ROCK					EARTH			ROCK		
I.D. (IN.)	G (FT.)	THRUST (TONS)	A (FT.)	B (FT.)	VOL. (C.Y.)	A (FT.)	B (FT.)	VOL. (C.Y.)	I.D. (IN.)	G (FT.)	THRUST (TONS)	A (FT.)	B (FT.)	VOL. (C.Y.)	A (FT.)	B (FT.)	VOL. (C.Y.)
4,6,8	2.1	5.6	3.0	2.0	0.3	2.0	1.5	0.2	4,6,8	2.7	7.1	5.0	1.5	0.4	2.0	2.0	0.2
10,12	3.1	12.6	5.5	2.5	0.8	3.5	2.0	0.4	10,12	4.0	16.0	6.5	2.5	1.0	3.5	2.5	0.5
16,18	4.7	28.3	7.5	4.0	1.9	5.5	3.0	0.9	16,18	6.0	36.0	9.0	4.0	2.4	4.5	4.0	1.0
20	5.2	34.9	9.0	4.0	2.3	5.5	3.5	1.2	20	6.6	44.4	10.0	4.5	3.1	6.0	4.0	1.5
24	6.2	50.3	11.5	4.5	3.5	6.5	4.0	1.6	24	7.9	64.0	14.5	4.5	5.0	8.0	4.0	2.1
30	7.8	58.9	12.0	5.0	4.8	7.5	4.0	2.2	30	9.9	75.0	15.0	5.0	6.7	10.0	4.0	3.3
36	9.4	84.9	14.5	6.0	8.2	9.5	4.5	3.8	36	11.9	108.0	18.0	6.0	11.4	12.0	4.5	5.3
42	10.9	115.5	17.0	7.0	12.8	11.0	5.5	6.3	42	13.9	147.0	21.0	7.0	17.8	14.0	5.5	8.7
48	12.5	150.9	19.0	8.0	18.4	13.0	6.0	9.2	48	15.9	192.0	24.0	8.0	26.2	16.0	6.0	12.4
54	14.0	191.0	21.5	9.0	26.0	15.0	6.5	12.9	54	17.9	243.0	27.0	9.0	36.9	18.0	7.0	18.1
60	15.6	235.8	24.0	10.0	35.6	16.0	7.5	17.6	60	19.9	299.8	30.0	10.0	50.3	20.0	7.5	24.0
66	17.1	285.3	26.0	11.0	46.0	18.0	8.0	23.0	66	21.8	362.8	33.0	11.0	66.2	22.0	8.5	32.5
72	18.7	339.5	28.5	12.0	57.8	19.0	9.0	28.4	72	23.8	431.8	36.0	12.0	85.6	24.0	9.0	41.0
78	20.2	398.5	31.0	13.0	75.7	21.0	9.5	37.4	78	25.7	506.7	39.0	13.0	108.2	26.0	10.0	53.2
84	21.8	462.1	33.5	14.0	94.7	22.0	10.5	46.5	84	27.7	587.7	42.0	14.0	134.4	28.0	10.5	64.8
90	23.3	530.5	35.5	15.0	114.4	24.5	11.0	58.2	90	29.0	674.6	45.0	15.0	164.9	30.0	11.5	81.2
95	24.9	603.6	38.0	16.0	138.9	25.5	12.0	70.0	96	31.6	767.5	48.0	16.0	199.0	32.0	12.0	95.1

TABLES OF DIMENSIONS AND QUANTITIES

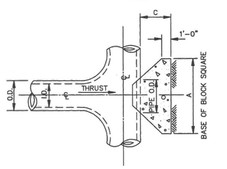
HORIZONTAL THRUST BLOCK AT PIPE BEND

North Central Texas Council of Governments

STANDARD SPECIFICATION REFERENCE: 502.4
DATE: OCT. '04
STANDARD DRAWING NO.: 4010C



PLAN OF PLUG THRUST BLOCK
N.T.S.



PLAN OF TEE THRUST BLOCK
N.T.S.

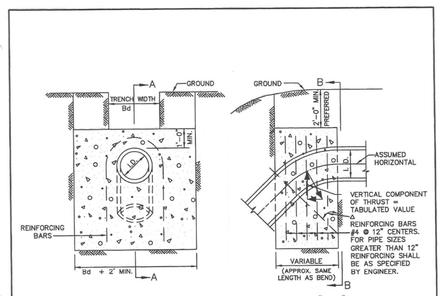
REFER TO
STD. DWG. No. 4040
FOR GENERAL NOTES.

I.D. (IN.)	THRUST (TONS)	C (FT.)	EARTH A (FT.)	EARTH VOL. (C.Y.)	ROCK A (FT.)	ROCK VOL. (C.Y.)
4,6,8	5.1	1.5	2.5	0.3	2.0	0.2
10,12	11.3	1.5	3.5	0.6	2.5	0.3
16,18	25.5	2.0	5.5	1.6	4.0	0.9
20	31.5	2.0	6.0	1.9	4.0	0.9
24	45.2	2.5	7.0	3.1	5.0	1.7
30	53.0	3.0	7.5	4.1	5.5	2.4
36	78.3	4.0	9.0	7.3	6.5	4.2
42	106.0	4.5	10.5	11.0	7.5	6.2
48	136.0	5.0	12.0	15.8	8.5	8.9
54	172.0	5.5	13.5	21.4	9.5	11.9
60	212.0	6.0	15.0	28.4	10.5	15.7
66	257.0	6.5	16.5	36.8	11.5	20.5
72	305.0	7.5	17.5	47.2	12.5	27.2
78	358.0	8.0	19.0	58.9	13.5	33.7
84	416.0	8.5	20.5	72.3	14.5	41.2
90	477.0	9.0	22.0	87.7	15.5	49.7
96	543.0	9.5	23.5	104.8	16.5	61.0

HORIZONTAL THRUST BLOCK AT TEES AND PLUGS

North Central Texas Council of Governments

STANDARD SPECIFICATION REFERENCE: 502.4
DATE: OCT. '04
STANDARD DRAWING NO.: 4020



ELEVATION "B–B"
N.T.S.

SECTION "A–A"
N.T.S.

REFER TO
STD. DWG. No. 4040
FOR GENERAL NOTES.

Δ	11.25°		22.50°		30°		45°		67.50°		90°		Δ
I.D. (IN.)	THRUST (TONS)	VOL. (C.Y.)	THRUST (TONS)	VOL. (C.Y.)	THRUST (TONS)	VOL. (C.Y.)	THRUST (TONS)	VOL. (C.Y.)	THRUST (TONS)	VOL. (C.Y.)	THRUST (TONS)	VOL. (C.Y.)	I.D. (IN.)
4,6,8	1.0	0.5	2.0	1.0	2.5	1.3	3.6	1.8	4.6	2.3	5.0	2.5	4,6,8
10,12	2.2	1.1	4.3	2.2	5.7	2.8	8.0	4.0	10.5	5.2	11.3	5.7	10,12
16,18	5.0	2.5	9.7	4.9	12.7	6.4	18.0	9.0	23.5	11.8	25.5	12.7	16,18
20	6.1	3.1	12.0	6.0	15.7	7.9	22.2	11.1	29.2	14.5	31.4	15.7	20
24	8.2	4.4	17.3	8.7	22.6	11.3	32.0	16.0	41.8	20.9	45.2	22.6	24
30	10.5	5.2	20.3	10.1	26.5	13.3	37.5	18.8	49.0	24.5	53.1	26.5	30
36	14.9	7.5	29.2	14.6	38.2	19.1	54.0	27.0	70.5	35.3	76.4	38.2	36
42	20.3	10.1	39.8	19.9	52.0	26.0	73.5	36.7	96.0	48.0	104.0	52.0	42
48	26.5	13.2	51.9	26.0	67.9	33.9	96.0	48.0	126.0	62.7	136.0	67.9	48
54	33.5	16.8	65.7	32.9	85.9	42.9	122.0	60.7	159.0	79.4	172.0	85.9	54
60	41.4	20.7	81.2	40.6	106.0	53.0	150.0	75.0	196.0	98.0	212.0	106.0	60
66	50.1	25.0	98.2	49.1	128.0	64.2	182.0	90.7	237.0	119.0	257.0	128.0	66
72	59.6	29.8	117.0	58.4	153.0	76.3	216.0	108.0	282.0	141.0	305.0	153.0	72
78	69.9	35.0	137.0	68.6	179.0	90.0	254.0	127.0	331.0	166.0	358.0	179.0	78
84	81.1	40.5	159.0	79.5	208.0	104.0	294.0	147.0	384.0	192.0	416.0	208.0	84
90	93.1	46.5	183.0	91.3	239.0	119.0	337.0	169.0	441.0	221.0	477.0	239.0	90
96	106.0	53.0	208.0	104.0	272.0	136.0	384.0	192.0	502.0	251.0	543.0	272.0	96

VERTICAL THRUST BLOCK AT PIPE BEND

North Central Texas Council of Governments

STANDARD SPECIFICATION REFERENCE: 502.4
DATE: OCT. '04
STANDARD DRAWING NO.: 4030

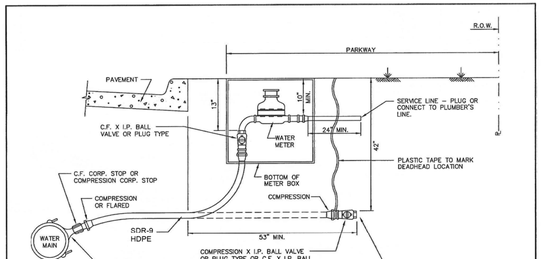
GENERAL NOTES FOR ALL THRUST BLOCKS:

1. CONCRETE FOR BLOCKING SHALL BE CLASS "B".
2. ALL CALCULATIONS ARE BASED ON INTERNAL PRESSURE OF 200 PSI FOR DUCTILE IRON, P.V.C., AND 150 PSI FOR CONCRETE PIPE.
3. VOLUMES OF THRUST BLOCKS ARE NET VOLUMES OF CONCRETE TO BE FURNISHED. THE CORRESPONDING WEIGHT OF THE CONCRETE (CLASS "B") IS EQUAL TO OR GREATER THAN THE VERTICAL COMPONENT OF THE THRUST ON THE VERTICAL BEND.
4. WALL THICKNESS (T) ASSUMED HERE FOR ESTIMATING PURPOSES ONLY.
5. POUR CONCRETE FOR BLOCK AGAINST UNDISTURBED EARTH.
6. DIMENSIONS MAY BE VARIED AS REQUIRED BY FIELD CONDITIONS WHERE AND AS DIRECTED BY THE ENGINEER. THE VOLUME OF CONCRETE BLOCKING SHALL NOT BE LESS THAN SHOWN HERE.
7. THE SOIL BEARING PRESSURES ARE BASED ON 1000 LBS./S.F. IN SOIL AND 2000 LBS./S.F. IN ROCK.
8. USE POLYETHYLENE WRAP OR EQUAL BETWEEN CONCRETE AND BEND, TEE, OR PLUG TO PREVENT THE CONCRETE FROM STICKING TO IT.
9. CONCRETE SHALL NOT EXTEND BEYOND JOINTS.

THRUST BLOCK GENERAL NOTES

North Central Texas Council of Governments

STANDARD SPECIFICATION REFERENCE: 502.4
DATE: OCT. '04
STANDARD DRAWING NO.: 4040

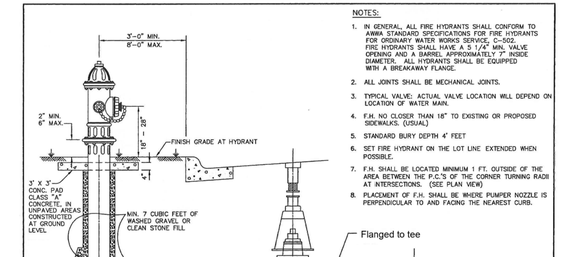


STANDARD DRAWING NO.: 4130

WATER SERVICE INSTALLATION
1" SDR-9 HDPE

North Central Texas Council of Governments

STANDARD SPECIFICATION REFERENCE: 502.10
DATE: OCT. '04
STANDARD DRAWING NO.: 4130



NOTES:
1. IN GENERAL, ALL FIRE HYDRANTS SHALL CONFORM TO AWWA STANDARD SPECIFICATIONS FOR FIRE HYDRANTS FOR ORDINARY WATER WORKS SERVICE, C-502. FIRE HYDRANTS SHALL HAVE A 5 1/4" MIN. VALVE OPENING AND A BARREL APPROXIMATELY 7" INSIDE DIAMETER. ALL HYDRANTS SHALL BE EQUIPPED WITH A BREAKAWAY FLANGE.
2. ALL JOINTS SHALL BE MECHANICAL JOINTS.
3. TYPICAL VALVE; ACTUAL VALVE LOCATION WILL DEPEND ON LOCATION OF WATER MAIN.
4. F.H. NO CLOSER THAN 18" TO EXISTING OR PROPOSED SIDEWALKS. (USUAL)
5. STANDARD BURY DEPTH 4' FEET
6. SET FIRE HYDRANT ON THE LOT LINE EXTENDED WHEN POSSIBLE.
7. F.H. SHALL BE LOCATED MINIMUM 1 FT. OUTSIDE OF THE AREA BETWEEN THE P.C.'S OF THE CORNER TURNING RADII AT INTERSECTIONS. (SEE PLAN VIEW)
8. PLACEMENT OF F.H. SHALL BE WHERE PUMPER NOZZLE IS PERPENDICULAR TO AND FACING THE NEAREST CURB.

STANDARD DRAWING NO.: 4120

FIRE HYDRANT INSTALLATION

North Central Texas Council of Governments

STANDARD SPECIFICATION REFERENCE: 502.3
DATE: OCT. '04
STANDARD DRAWING NO.: 4120

AS-BUILT FEBRUARY 2023
INFORMATION PROVIDED BY CONTRACTORS AND DEVELOPER (NOT FIELD VERIFIED)

CORWIN ENGINEERING, INC.
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200
TBPE FIRM #5951

DEVELOPMENT PLANS FOR
BARRATT LAKE ESTATES
LUCAS, TEXAS

STANDARD DETAILS

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
			21
JOB NUMBER	DATE	SCALE:	
20013	OCTOBER 2022		