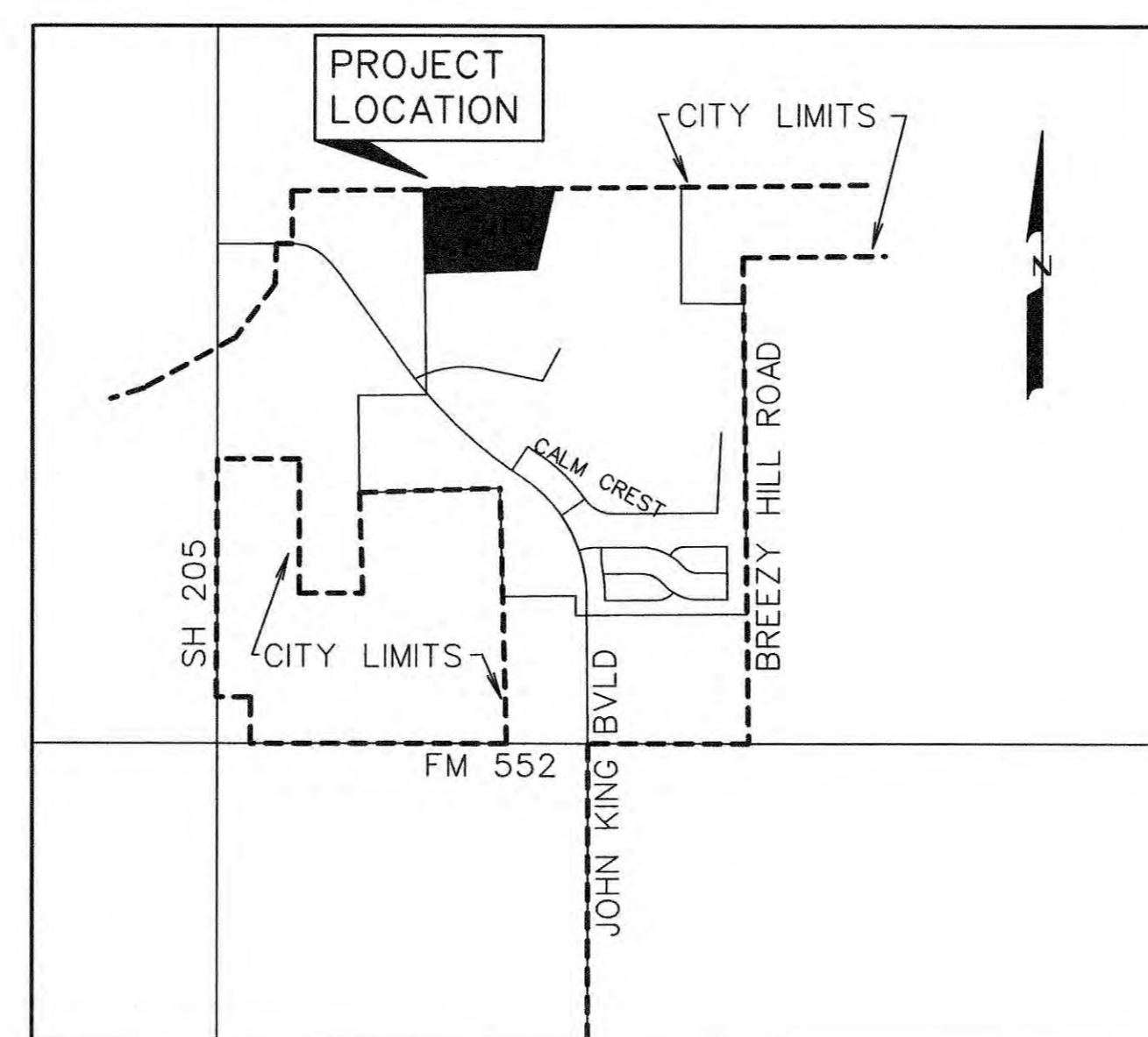


DEVELOPMENT PLANS FOR BREEZY HILL PHASE VI CITY OF ROCKWALL, TEXAS



VICINITY MAP
NOT TO SCALE

PREPARED FOR
BH PHASE VISF, LTD.
8214 WESTCHESTER DRIVE, SUITE 710 DALLAS, TEXAS 75225

INDEX

1	TITLE
2	PLAT
3	KETTON DRIVE
4	SENEY DRIVE
5	SINGING WATER DRIVE
6	SUMMER OAKS DRIVE
7	SUMMER OAKS DRIVE, WINDY RIDGE LANE
8	WINDY RIDGE LANE
8B	LORION DRIVE
9	WATER AND SANITARY SEWER PLAN
10	SANITARY SEWER PROFILES
11	SANITARY SEWER PROFILES
11B	SANITARY SEWER PROFILES
12	FORCE MAIN PROFILE
13	EXISTING CONDITIONS DRAINAGE AREA MAP
13A	DRAINAGE AREA MAP ULTIMATE CONDITIONS
14	DRAINAGE AREA MAP ULTIMATE CONDITIONS
15	DRAINAGE AREA MAP INTERIM CONDITIONS
16	DRAINAGE AREA MAP INTERIM CONDITIONS
17	DRAINAGE CALCULATIONS
18	STORM SEWER PLAN AND PROFILE LINES 'D-1' & 'D-2' STA. 1+00 TO 7+00
19	STORM SEWER PLAN AND PROFILE LINES 'D-2' STA. 7+00 TO END & 'D-3'
20	STORM SEWER PLAN AND PROFILE LINE 'D-4'
21	STORM SEWER PLAN AND PROFILE LINE 'D-5' & GRADE TO DRAIN
22	STORM SEWER PLAN AND PROFILE LINE 'D-6'
23	STORM SEWER LATERAL PROFILES
24	PARK GRADE TO DRAIN
25	GRADING PLAN
26	GRADING PLAN
26B	GRADING PLAN
27	EROSION CONTROL PLAN
28	STREET SIGN PLAN
LS-1	LIFT STATION SITE PLAN
LS-2	LIFT STATION PLAN AND SECTIONS
LS-3	LIFT STATION DETAILS
LS-4	LIFT STATION DETAILS
LSE-1	ELECTRICAL GENERAL NOTES
LSE-2	ELECTRICAL SITE PLAN AND DETAILS
LSE-3	ELECTRICAL ONE-LINE AND DETAILS
LSE-4	ELECTRICAL CONTROL PANEL DETAILS
LSE-5	ELECTRICAL ONE-LINE AND SPECIAL NOTES
LSE-6	ELECTRICAL DETAILS
LSE-7	SCADA DETAILS

CORWIN ENGINEERING, INC. — CONSULTING ENGINEERS

200 W. BELMONT, SUITE E

TBPE FIRM #5951

ALLEN, TEXAS 75013



AS-BUILT JULY 2018
INFORMATION PROVIDED
BY CONTRACTORS
(NOT FIELD VERIFIED)

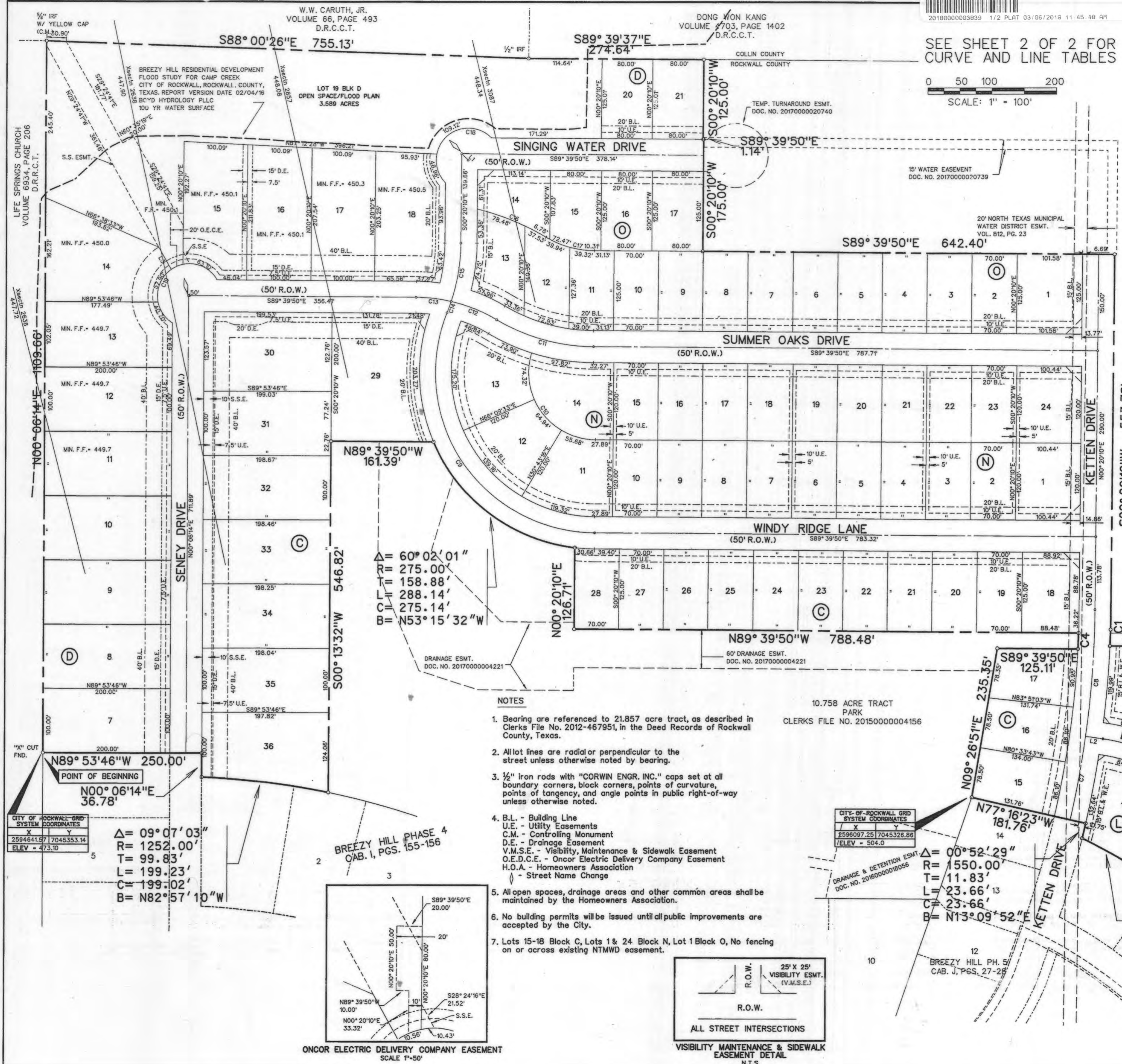
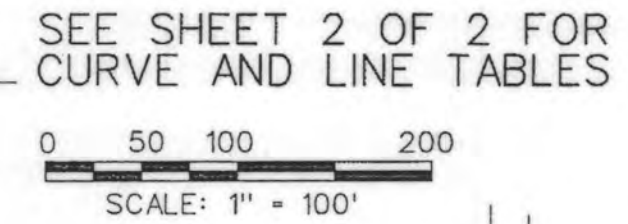
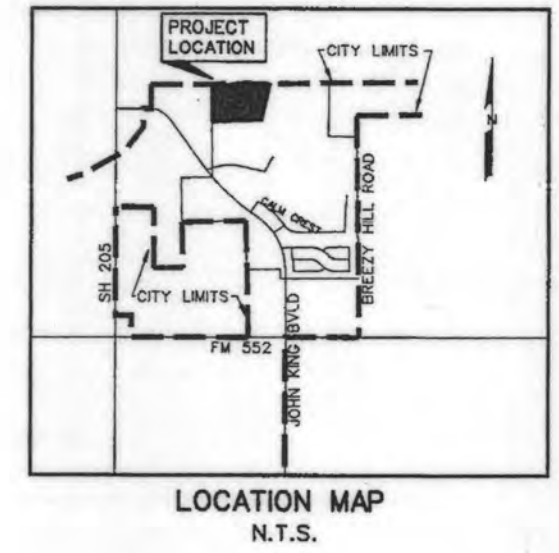
NOTE:
CITY OF ROCKWALL STANDARDS
AND NCTCOG 3rd ADDITION STANDARDS
SHALL BE USED FOR REFERENCE.

3	ADDED SHEETS 8B, 11B & 26B	4/11/17
2	CITY COMMENTS	12/16/16
1	CITY COMMENTS	10/20/16
NO.	REVISIONS	DATE

BREEZY HILL PHASE VI
79 LOTS, BEING 32.022 ACRES
OUT OF THE
J. STRICKLAND SURVEY, ABSTRACT NO. 187

IN THE
CITY OF ROCKWALL
ROCKWALL COUNTY, TEXAS
OWNER
BH PHASE VI, SF, LTD.
8214 WESTCHESTER DRIVE., SUITE 710
DALLAS, TEXAS 75225
214-522-4945

PREPARED BY
CORWIN ENGINEERING, INC.
TBPLS #10031700
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013
972-396-1200
JANUARY 2018 SCALE 1" = 100'



$\Delta = 60^{\circ}02'01''$
 $R = 275.00'$
 $T = 158.88'$
 $L = 288.14'$
 $C = 275.14'$
 $B = N53^{\circ}15'32''W$

$\Delta = 02^{\circ}27'58''$
 $R = 1016.00'$
 $T = 21.87'$
 $L = 43.73'$
 $C = 43.73'$
 $B = S60^{\circ}18'33''E$

$\Delta = 00^{\circ}52'29''$
 $R = 1550.00'$
 $T = 11.83'$
 $L = 23.66'$
 $C = 23.66'$
 $B = N13^{\circ}09'52''E$

$\Delta = 05^{\circ}25'40''$
 $R = 825.00'$
 $T = 39.11'$
 $L = 78.15'$
 $C = 78.12'$
 $B = N61^{\circ}47'24''W$

NOTES

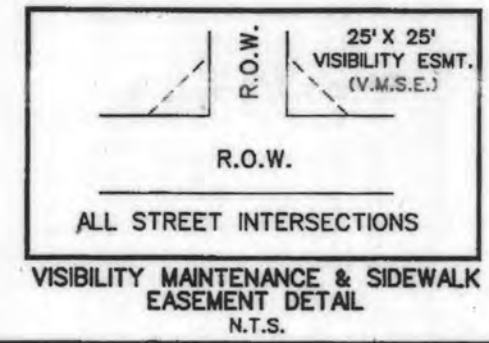
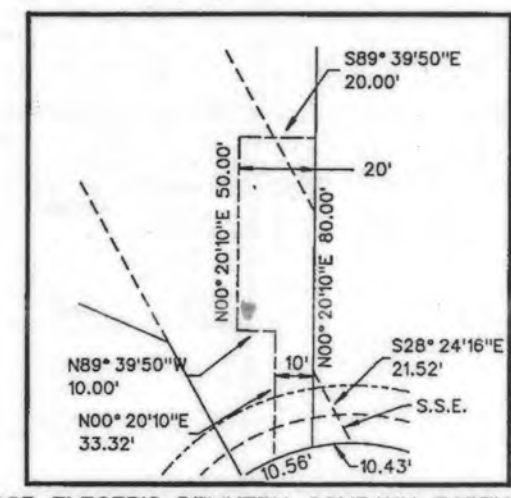
- Bearing are referenced to 21.857 acre tract, as described in Clerks File No. 2012-467951, in the Deed Records of Rockwall County, Texas.
- All lot lines are radial or perpendicular to the street unless otherwise noted by bearing.
- 1/2" iron rods with "CORWIN ENGR. INC." caps set at all boundary corners, block corners, points of curvature, points of tangency, and angle points in public right-of-way unless otherwise noted.
- B.L. - Building Line
U.E. - Utility Easements
C.M. - Controlling Monument
D.E. - Drainage Easement
V.M.S.E. - Visibility, Maintenance & Sidewalk Easement
O.E.D.C.E. - Oncor Electric Delivery Company Easement
H.O.A. - Homeowners Association
- Street Name Change
- All open spaces, drainage areas and other common areas shall be maintained by the Homeowners Association.
- No building permits will be issued until all public improvements are accepted by the City.
- Lots 15-18 Block C, Lots 1 & 24 Block N, Lot 1 Block O, No fencing on or across existing NTMWD easement.

CITY OF ROCKWALL GRID SYSTEM COORDINATES

X	Y
2594641.97	7045326.86
ELEV = 473.10	

$\Delta = 09^{\circ}07'03''$
 $R = 1252.00'$
 $T = 99.83'$
 $L = 199.23'$
 $C = 199.02'$
 $B = N82^{\circ}57'10''W$

BREEZY HILL PHASE 4
CAB. I, PGS. 155-156



DRIVEWAY CULVERT SIZE REQUIREMENTS

Block	Lot	Pipe Size (in)	No. of Barrels
C	29	18	1
C	30	24	2
C	31	24	2
C	32	21	2
C	33	21	2
C	34	21	2
C	35	21	2
C	36	24	1
D	7	18	1
D	8	18	1
D	9	18	1
D	10	21	1
D	11	21	1
D	12	24	1
D	13	24	1
D	14	24	1
D	15	21	2
D	16	18	1
D	17	18	1
D	18	18	1

CASE #2017-022

LEGAL DESCRIPTION

WHEREAS, BH PHASE VI, SF, LTD., is the owner of a tract of land situated in the J. Strickland Survey, Abstract No. 187 in the City of Rockwall, Rockwall County, Texas, being out of Tract 1, as described in Clerks File No. 20130000498889 in the Deed Records of Rockwall County, Texas and a 39.298 acre tract, as described in Clerks File No. 20130000498882 in said Deed Records and being more particularly described as follows:

BEGINNING, at an "x" cut set at the northwest corner of Breezy Hill Phase 4, an addition to the City of Rockwall, Texas, as described in Cab. I, Pgs. 155-156, in the plat records of Rockwall County, Texas, also being in the east line of a 31.012 acre tract, as described in Vol. 6934, Pg. 206, in said Deed Records, same being in the west line of said Tract 1;

THENCE, North 00°06'14" East, along the west line of said Tract 1 and the east line of said 31.012 acre tract, for a distance 1109.66 feet, to a 1/2 inch iron rod found at the northwest corner of said Tract 1 and the northeast corner of said 31.012 acre tract;

THENCE, South 88°00'26" East, along the north line of said Tract 1, for a distance of 755.13 feet, to a 1/2 inch iron rod found;

THENCE, South 89°39'37" East, continuing along said north line, for a distance of 274.64 feet, to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;"

THENCE, South 00°20'10" West, departing said north line, for a distance of 125.00 feet, to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;"

THENCE, South 89°39'50" East, for a distance of 1.14 feet, to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;"

THENCE, South 00°20'10" West, for a distance of 175.00 feet, to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;"

THENCE, South 89°39'50" East, for a distance of 642.40 feet, to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;"

THENCE, South 00°20'10" West, for a distance of 553.78 feet, to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;" being at a point of tangency of a curve to the right, having a radius of 1560.00 feet, a central angle of 02°04'43" and a tangent of 28.12 feet;

THENCE, along said curve at 8.10 feet, passing the northwest corner of a 6.705 acre tract, as described in Clerks File No. 2015000004156, in said Deed Records, for an total arc distance of 56.23 feet Chord Bearing South 01°22'31" West - 56.23 feet), to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;" at the most westerly southwest corner of said 6.705 acre tract;

THENCE, South 89°39'50" East, along the south line of said 6.705 acre tract, for a distance of 34.47 feet, to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;" on a non-tangent curve to the right, having a radius of 400.00 feet, a central angle of 12°48'03", and a tangent of 44.87 feet;

THENCE, continuing along said curve, and said south line for an arc distance of 89.37 feet (Chord Bearing South 72°16'09" East - 89.18 feet), to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;"

THENCE, South 24°07'53" West, departing said south line, at 17.70 feet, passing a point in the north line of said 39.298 acre tract and continuing for a distance of 125.00 feet, to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;" on a non-tangent curve the right, having a radius of 275.00 feet, a central angle of 04°19'35", and a tangent of 10.39 feet;

THENCE, continuing along said curve to the right for an arc distance of 20.77 feet (Chord Bearing South 63°42'20" East - 20.76 feet), to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;" at the point of compound curvature of a curve to the right, having a radius of 1016.00 feet, a central angle of 02°27'58", and a tangent of 21.87 feet;

THENCE, along said curve to the right for an arc distance of 43.73 feet (Chord Bearing South 60°18'33" East - 43.73 feet), to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;"

THENCE, South 30°55'26" West, for a distance of 191.00 feet, to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;" in the north line of Breezy Hill Phase 5, an addition to the City of Rockwall, as described in Cab. J, Pgs 27-28 in said Plat Records and being in the south line of said 39.298 acre tract, being on a non-tangent curve to the left, having a radius of 825.00 feet, a central angle of 05°29'40", and a tangent of 39.11 feet;

THENCE, continuing along the north of said Breezy Hill Phase 5, with said curve to the left for an arc distance of 78.15 feet (Chord Bearing North 61°47'24" West - 78.12 feet), to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;" in the north line of said Breezy Hill Phase 5, being on a non-tangent curve to the left, having a radius of 1550.00 feet, a central angle of 00°52'29", and a tangent of 11.83 feet;

THENCE, along the north line of said Breezy Hill Phase 5 and with said curve to the left for an arc distance of 23.66 feet (Chord Bearing North 13°09'52" East - 23.66 feet), to a 1/2 inch iron rod found at the most northeasterly corner of said Breezy Hill Phase 5;

THENCE, North 77°16'23" West, continuing along said north line, for a distance of 181.76 feet, to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;" at the northwest corner of said Breezy Hill Phase 5 also being in the west line of said 39.298 acre tract same being in the east line of a 10.758 acre tract, as described in Clerks File No. 20150000004156, in said Deed Records;

THENCE, North 09°26'51" East, along the east line of said 10.758 acre tract, for a distance of 235.35 feet, to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;"

THENCE, South 89°39'50" East, continuing along said east line, for a total distance of 125.11 feet, to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;" on a non-tangent curve to the left, having a radius of 1500.00 feet, a central angle of 00°57'20", and a tangent of 12.51 feet;

THENCE, continuing along said east line and with said curve to the left for an arc distance of 25.01 feet (Chord Bearing North 02°11'51" East - 25.01 feet), to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;" at the northeast corner of said 10.758 acre tract;

THENCE, North 89°39'50" West, along the north line of said 10.758 acre tract, for a distance of 788.48 feet, to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;"

THENCE, North 00°20'10" East, continuing along said north line of said 10.758 acre tract, for a distance of 126.71 feet, to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;" on a non-tangent curve to the right, having a radius of 275.00 feet, a central angle of 80°02'01", and a tangent of 158.88 feet;

THENCE, continuing along said north line and with said curve to the right for an arc distance of 288.14 feet (Chord Bearing North 53°15'32" West - 275.14 feet), to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;"

THENCE, North 89°39'50" West, continuing along said north line, for a distance of 161.39 feet, to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;" at the northwest corner of said 10.758 acre tract;

THENCE, South 00°13'32" West, along the west line of said 10.758 acre tract, for a distance of 546.82 feet, to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;" in the north line of said Breezy Hill Phase 4, being on a curve to the left, having a radius of 1252.00 feet, a central angle of 09°07'03", and a tangent of 99.83 feet;

THENCE, along the north line of said Breezy Hill Phase 4 and with said curve to the left for an arc distance of 199.23 feet (Chord Bearing North 82°57'10" West - 199.02 feet), to a 1/2 inch iron rod found with a yellow cap stamped "Corwin Eng. Inc.;"

THENCE, North 00°06'14" East, continuing along said north line, for a distance of 36.78 feet, to a 1/2 inch iron rod set with a yellow cap stamped "Corwin Eng. Inc.;"

THENCE, North 89°53'46" West, continuing along said north line, for a distance of 250.00 feet, to the POINT OF BEGINNING and containing 32.020 acres of land.

SURVEYOR CERTIFICATE

I, WARREN L. CORWIN, do hereby certify that the plat shown hereon accurately represents the results of an on-the-ground survey made under my direction and supervision and all corners are as shown thereon and there are no encroachments, conflicts, protrusions or visible utilities on the ground except as shown and said plat has been prepared in accordance with the platting rules and regulations of the City Plan Commission of the City of Rockwall, Texas.

DATED this 11 day of Jan., 2018.

THE STATE OF TEXAS COUNTY OF COLLIN

WARREN L. CORWIN R.P.L.S. No. 4621



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 the same in the capacity therein stated and for the purposes and considerations therein expressed.

WITNESS MY HAND AND SEAL OF OFFICE, this the 11 day of Jan., 2018.

MARIA HALLFORD My Notary ID# 126048221 Expires January 27, 2020



OWNER'S CERTIFICATE

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS:

STATE OF TEXAS COUNTY OF ROCKWALL

We the undersigned owner "a" of the land shown on this plat, and designated herein as the BREEZY HILL PHASE VI, subdivision to the City of Rockwall, Texas, and whose name is subscribed hereto, hereby dedicate to the use of the public forever all streets, alleys, parks, water courses, drains, easements and public places thereon shown on the purpose and consideration therein expressed. We further certify that all other parties who have a mortgage or lien interest in the BREEZY HILL PHASE VI, subdivision have been notified and signed this plat.

We understand and do hereby reserve the easement strips shown on this plat for the purposes stated and for the mutual use and accommodation of all utilities desiring to use or using same. We also understand the following:

- 1. No buildings shall be constructed or placed upon, over, or across the utility easements as described herein.
2. Any public utility shall have the right to remove and keep removed all or part of any buildings, fences, trees, shrubs, or other growths or improvements which in any way endanger or interfere with construction, maintenance or efficiency of their respective system on any of these easement strips; and any public utility shall at all times have the right of ingress or egress to, from and upon the said easement strips for purpose of construction, reconstruction, inspecting, patrolling, maintaining, and either adding to or removing all or part of their respective system without the necessity of, at any time, procuring the permission of anyone.
3. The City of Rockwall will not be responsible for any claims of any nature resulting from or occasioned by the establishment of grade of streets in the subdivision.
4. The developer and subdivision engineer shall bear total responsibility for storm drain improvements.
5. The developer shall be responsible for the necessary facilities to provide drainage patterns and drainage controls such that properties within the drainage area are not adversely affected by storm drainage from the development.
6. No house dwelling unit, or other structure shall be constructed on any lot in this addition by the owner or any other person until the developer and/or owner has complied with all requirements of the Subdivision Regulations of the City of Rockwall regarding improvements with respect to the entire block on the street or streets on which property abuts, including the actual installation of streets with the required base and paving, curb and gutter, water and sewer, drainage structures, storm structures, storm sewers, and alleys, all according to the specifications of the City of Rockwall; or

Until an escrow deposit, sufficient to pay for the cost of such improvements, as determined by the city's engineer and/or city administrator, computed on a private commercial rate basis, has been made with the city secretary, accompanied by an agreement signed by the developer and/or owner, authorizing the city to make such improvements at prevailing private commercial rates, or have the same made by a contractor and pay for the same out of the escrow deposit, should the developer and/or owner fail or refuse to install the required improvements within the time stated in such written agreement, but in no case shall the City be obligated to make such improvements itself. Such deposit may be used by the owner and/or developer as progress payments as the work progresses in making such improvements by making certified requisitions to the city secretary, supported by evidence of work done; or

Until the developer and/or owner files a corporate surety bond with the city secretary in a sum equal to the cost of such improvements for the designated area, guaranteeing the installation thereof within the time stated in the bond, which time shall be fixed by the city council of the City of Rockwall.

We further acknowledge that the dedications and/or exaction's made herein are proportional to the impact of the Subdivision upon the public services required in order that the development will comport with the present and future growth needs of the City; we, our successors and assigns hereby waive any claim, damage, or cause of action that we may have as a result of the dedication of exactions made herein.

BH PHASE VI, SF, LTD. a Texas limited partnership By: BH PHASE VI, SF, GP Corporation, a Texas corporation, its General Partner

Richard M. Skorburg President

STATE OF TEXAS COUNTY OF DALLAS

Before me, the undersigned authority, on this day personally appeared RICHARD M. SKORBURG, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purpose and consideration therein stated. Given upon my hand and seal of office this 12 day of January, 2018.

Notary Public in and for the State of Texas My Commission Expires: 6/30/2019 Patricia Snyder

STATE OF TEXAS COUNTY OF DALLAS

Before me, the undersigned authority, on this day personally appeared Robert Gantt, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purpose and consideration therein stated. Given upon my hand and seal of office this 19 day of January, 2018.

Notary Public in and for the State of Texas My Commission Expires: 4-25-2020

NOTE: It shall be the policy of the City of Rockwall to withhold issuing building permits until all streets, water, sewer and storm drainage systems have been accepted by the City. The approval of a plat by the City does not constitute any representation, assurance or guarantee that any building within such plat shall be approved, authorized or permit therefore issued, nor shall such approval constitute any representation, assurance or guarantee by the City of the adequacy and availability for water for personal use and fire protection within such plat, as required under Ordinance 83-54.

Filed and Recorded Official Public Records Shelli Miller, County Clerk Rockwall County, Texas 03/06/2018 11:45:46 AM \$100.00 20180000003839



COPY

Recommended for Final Approval:

Planning & Zoning Commission Date 5/7/18

APPROVED I hereby certify that the above and foregoing plat of an addition to the City of Rockwall, Texas, was approved by the City Council of the City of Rockwall on the 15 day of May, 2018.

This approval shall be invalid unless the approved plat for such addition is recorded in the office of the Court Clerk of Rockwall, County, Texas, within one hundred eighty (180) days from said date of final approval.

WITNESS OUR HANDS, this 28th day of February, 2018.

Mayor, City of Rockwall City Secretary City Engineer



LINE TABLE

Table with columns: LINE NO., BEARING, DISTANCE. Contains 3 line items.

CURVE TABLE

Table with columns: CURVE NO., DELTA, RADIUS, LENGTH, TANGENT, CHORD, BEARING. Contains 19 curve items.

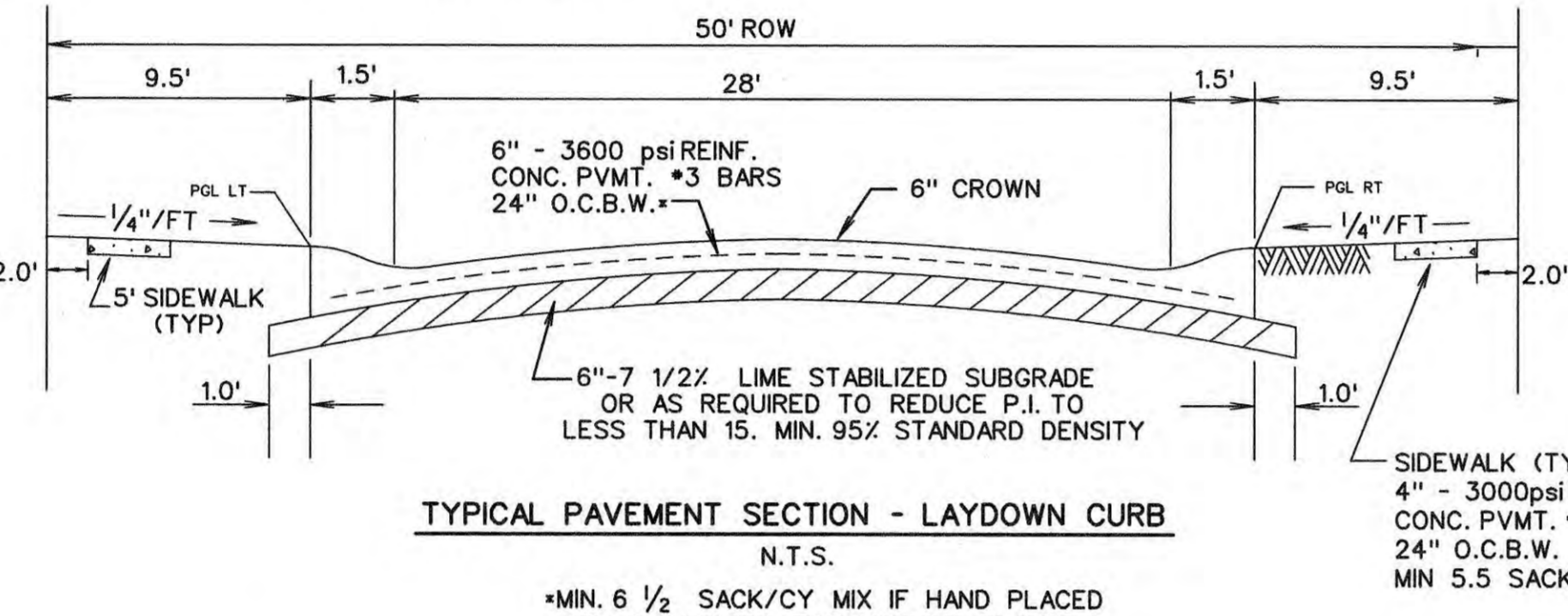
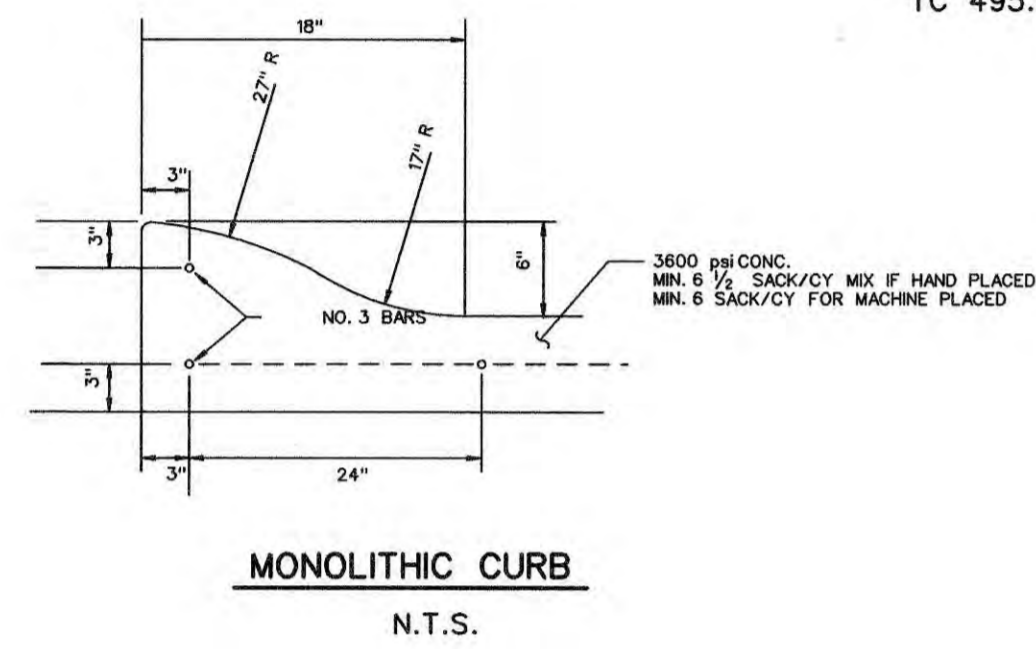
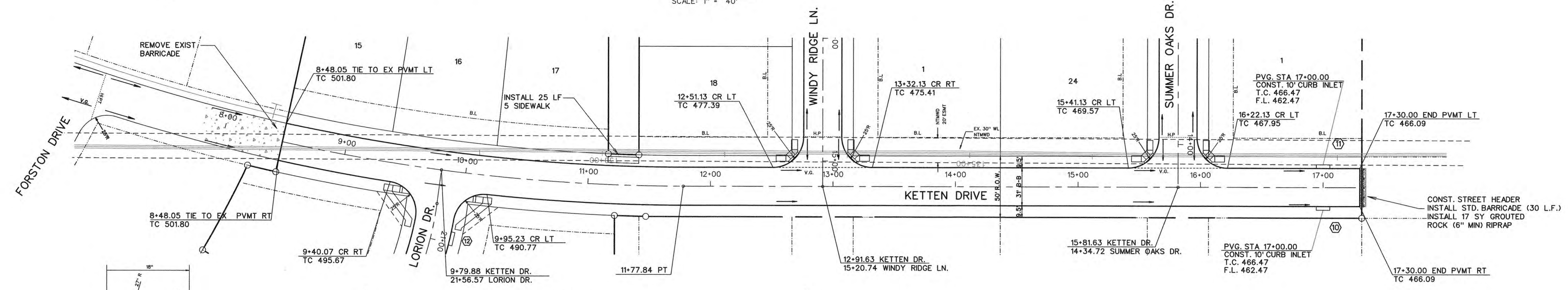
5292 FINAL PLAT OF BREEZY HILL PHASE VI 79 LOTS, BEING 32.020 ACRES OUT OF THE

J. STRICKLAND SURVEY, ABSTRACT NO. 187 IN THE CITY OF ROCKWALL ROCKWALL COUNTY, TEXAS OWNER BH PHASE VI, SF, LTD.

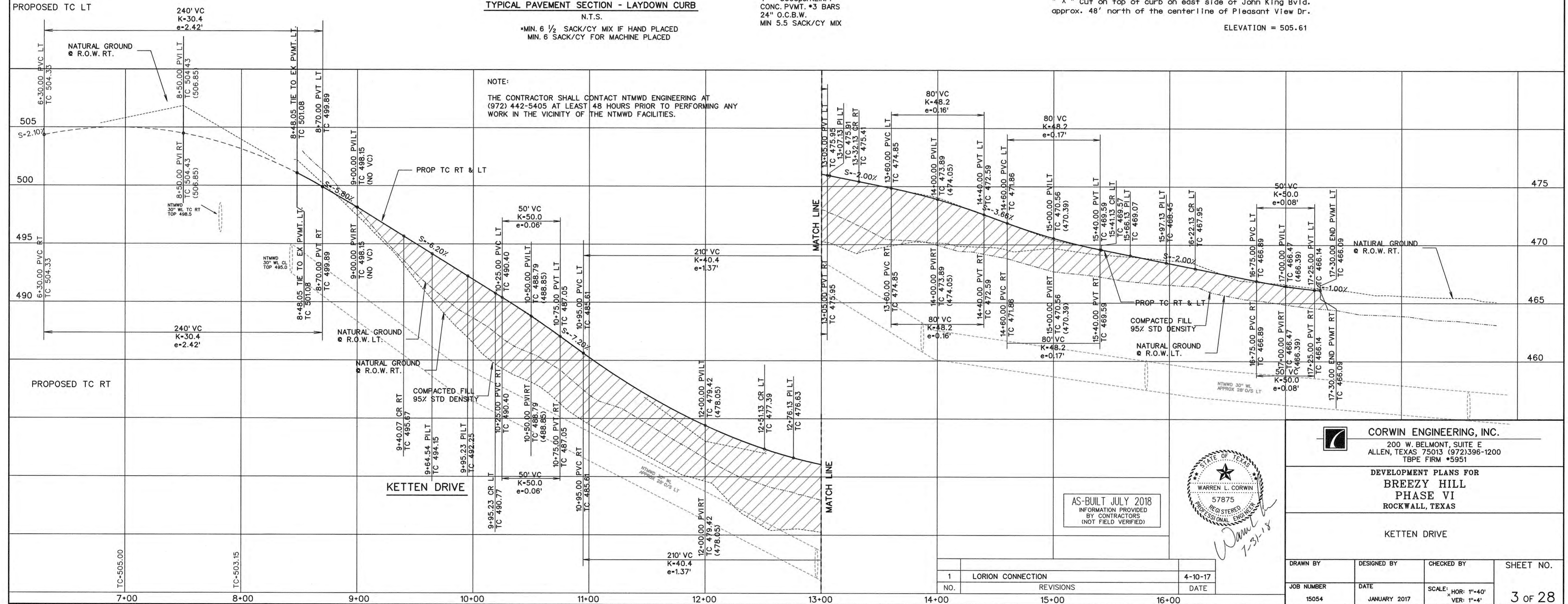
8214 WESTCHESTER DRIVE., SUITE 710 DALLAS, TEXAS 75225 214-522-4945

PREPARED BY CORWIN ENGINEERING, INC. TBPLS #10031700 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 972-396-1200 JANUARY 2018 SCALE 1" = 100'

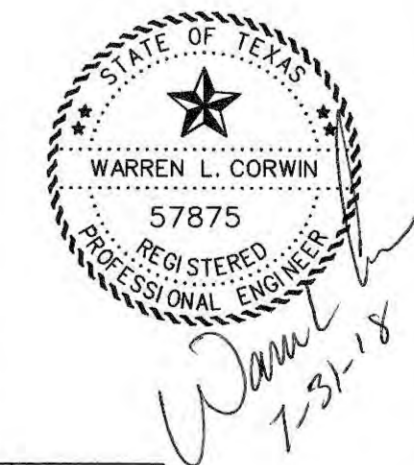
CASE #2017-022



BENCHMARK:
 " X " Cut on top of curb on east side of John King Blvd.
 approx. 48' north of the centerline of Pleasant View Dr.
 ELEVATION = 505.61



AS-BUILT JULY 2018
 INFORMATION PROVIDED
 BY CONTRACTORS
 (NOT FIELD VERIFIED)



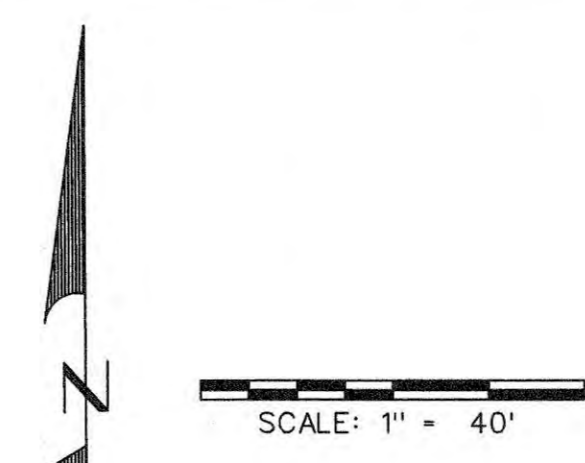
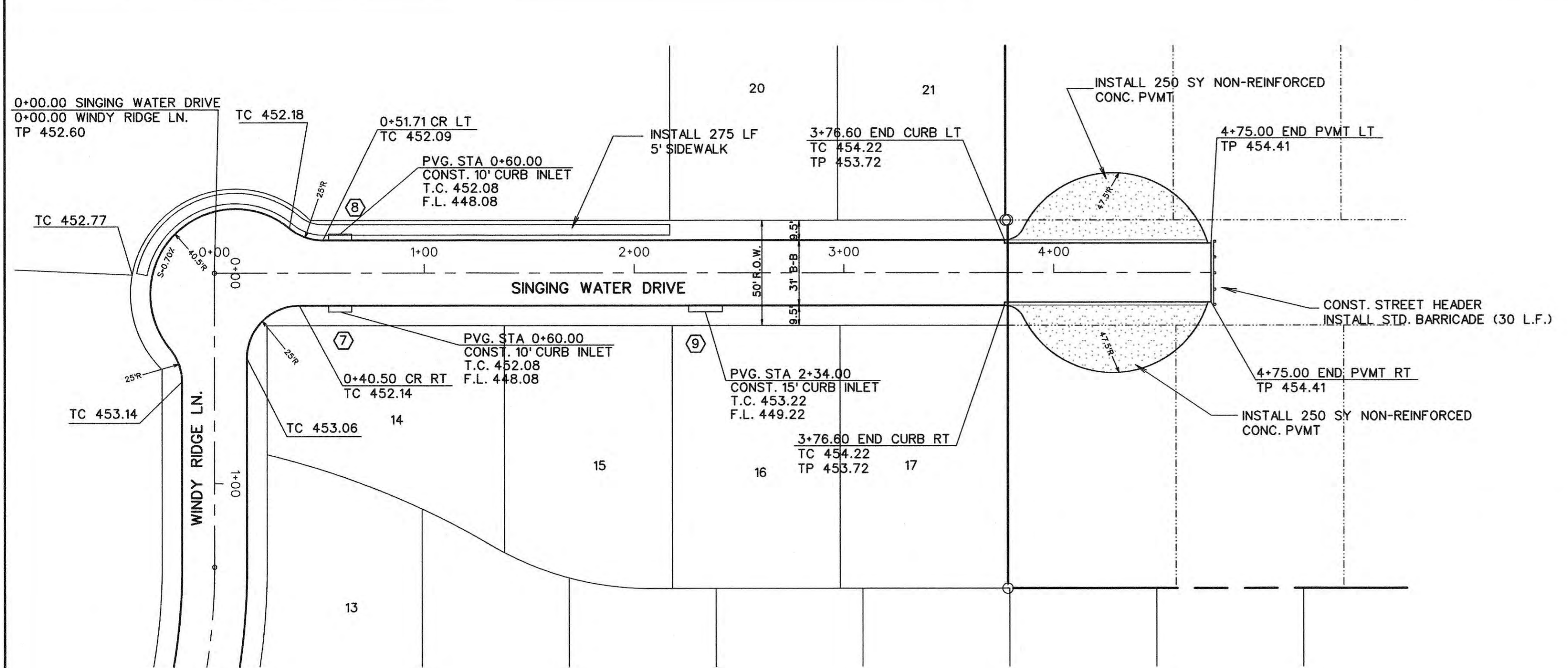
CORWIN ENGINEERING, INC.
 200 W. BELMONT, SUITE E
 ALLEN, TEXAS 75013 (972)396-1200
 TBPE FIRM #5951

DEVELOPMENT PLANS FOR
**BREEZY HILL
 PHASE VI**
 ROCKWALL, TEXAS

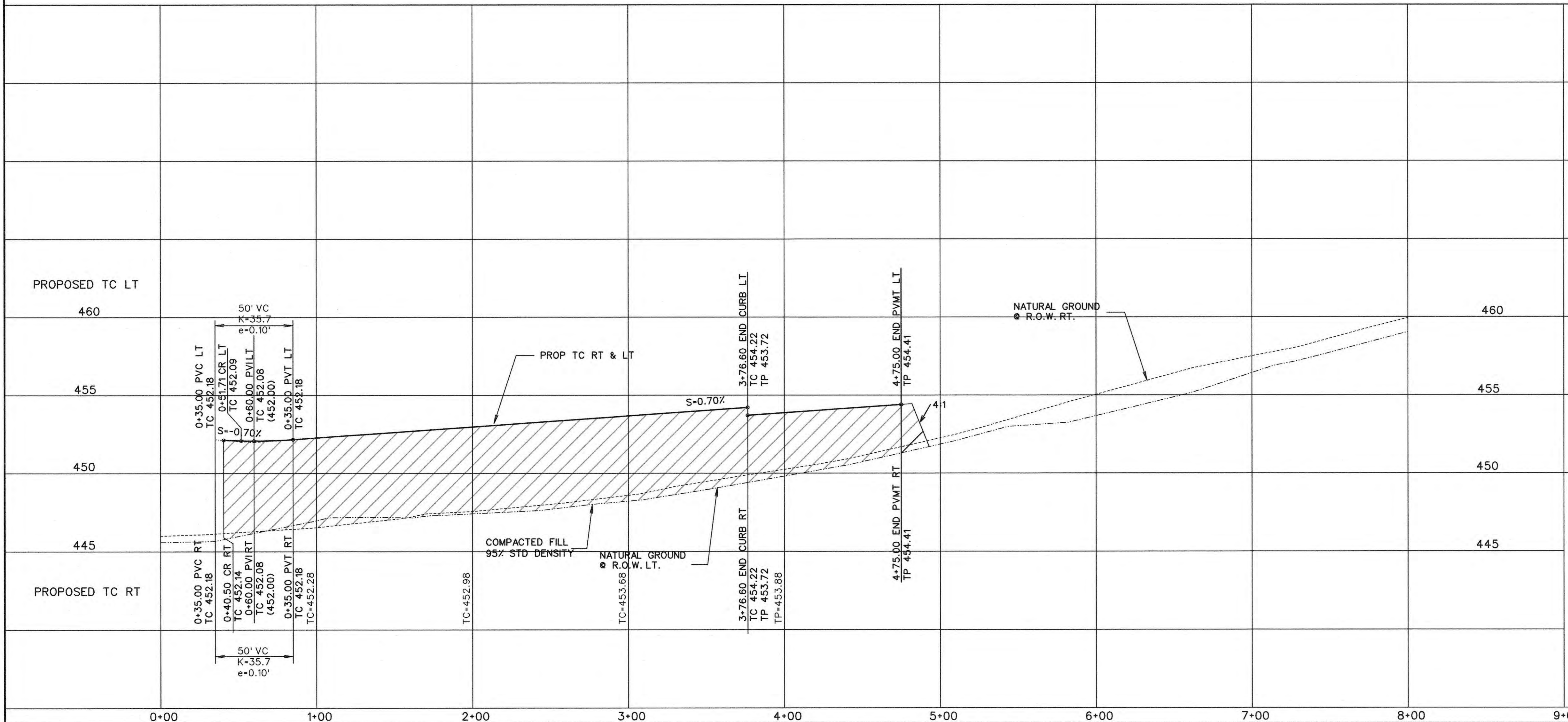
KETTEN DRIVE

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
15054	JANUARY 2017	SCALE: HOR: 1"=40' VER: 1"=4'	3 OF 28

1	LORION CONNECTION	4-10-17
NO.	REVISIONS	DATE

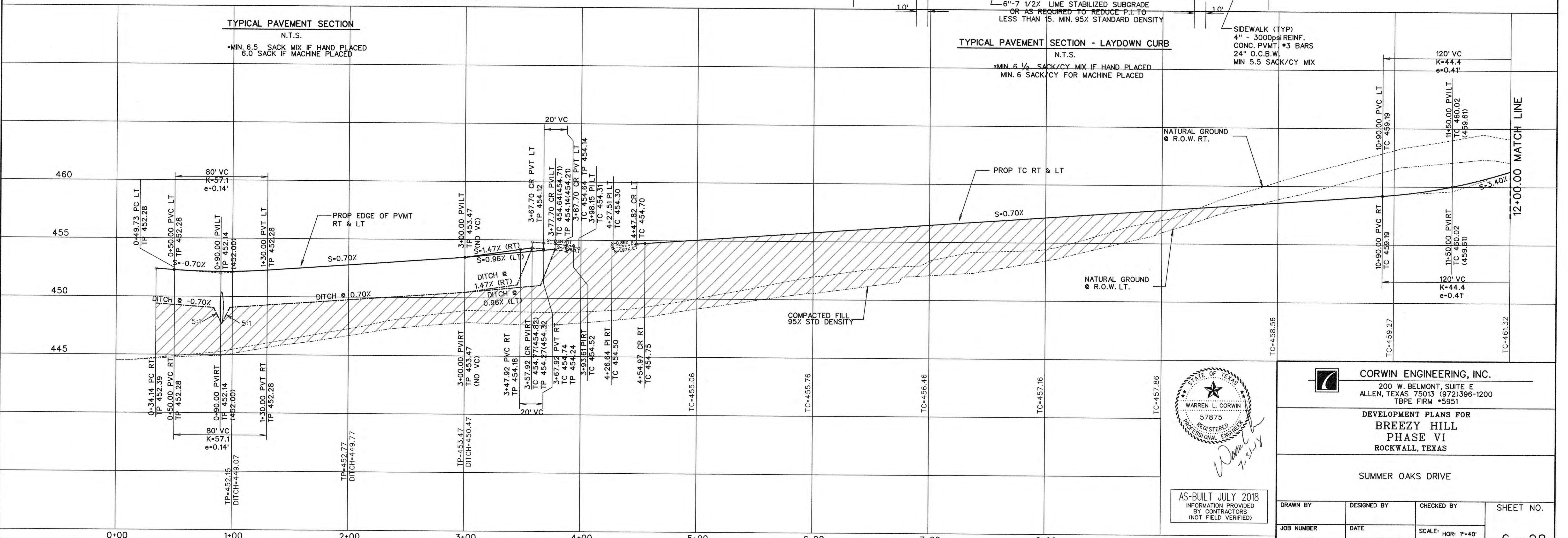
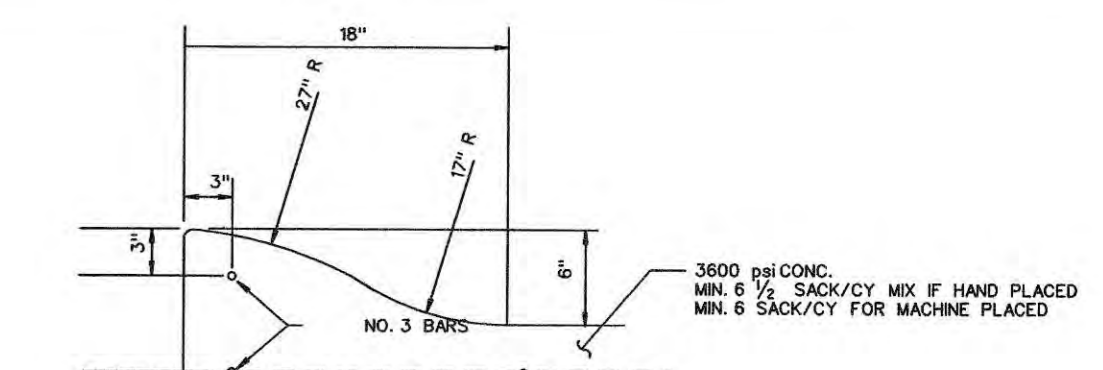
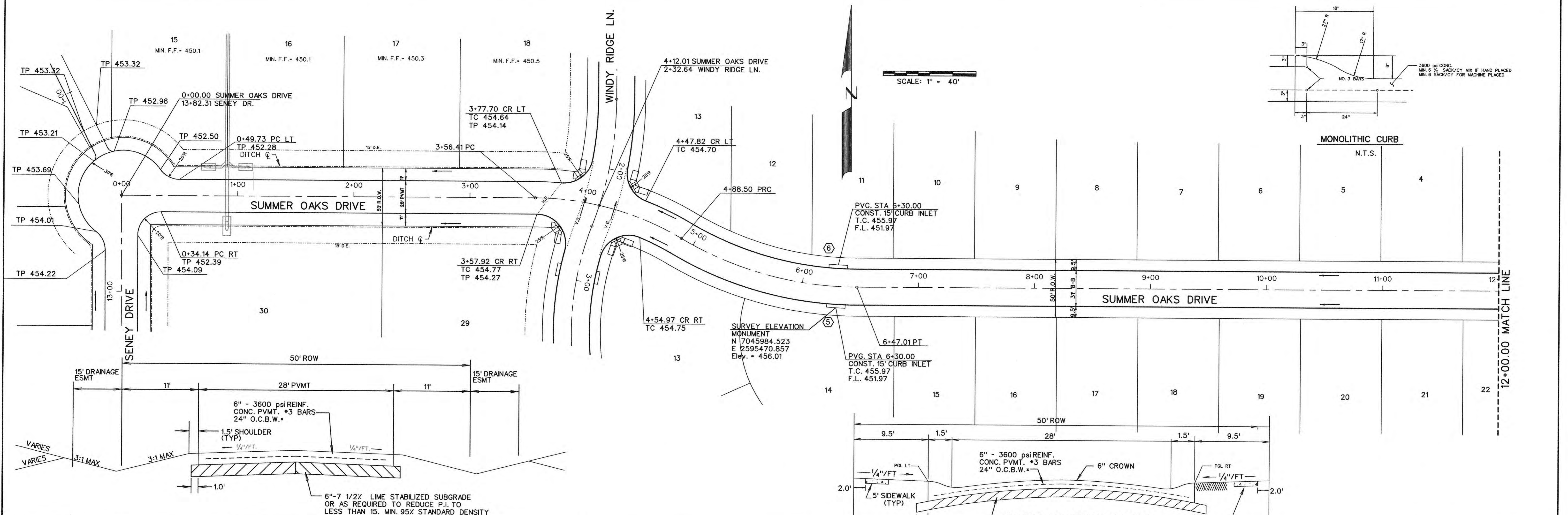


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 " X " Cut on top of curb on east side of John King Blvd.
 approx. 48' north of the centerline of Pleasant View Dr.
 ELEVATION = 505.61



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 BY CONTRACTORS
 (NOT FIELD VERIFIED)

<p>CORWIN ENGINEERING, INC. 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972)396-1200 TBPE FIRM #5951</p>			
<p>DEVELOPMENT PLANS FOR BREEZY HILL PHASE VI ROCKWALL, TEXAS</p>			
<p>SINGING WATER DRIVE</p>			
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	5 of 28
15054	JANUARY 2017		



TYPICAL PAVEMENT SECTION
N.T.S.
MIN. 6.5 SACK MIX IF HAND PLACED
6.0 SACK IF MACHINE PLACED

TYPICAL PAVEMENT SECTION - LAYDOWN CURB
N.T.S.
MIN. 6 1/2 SACK/CY MIX IF HAND PLACED
MIN. 6 SACK/CY FOR MACHINE PLACED

SIDEWALK (TYP)
4" - 3000psi REINF.
CONC. P.V.M.T. #3 BARS
24" O.C.B.W.
MIN. 5.5 SACK/CY MIX



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

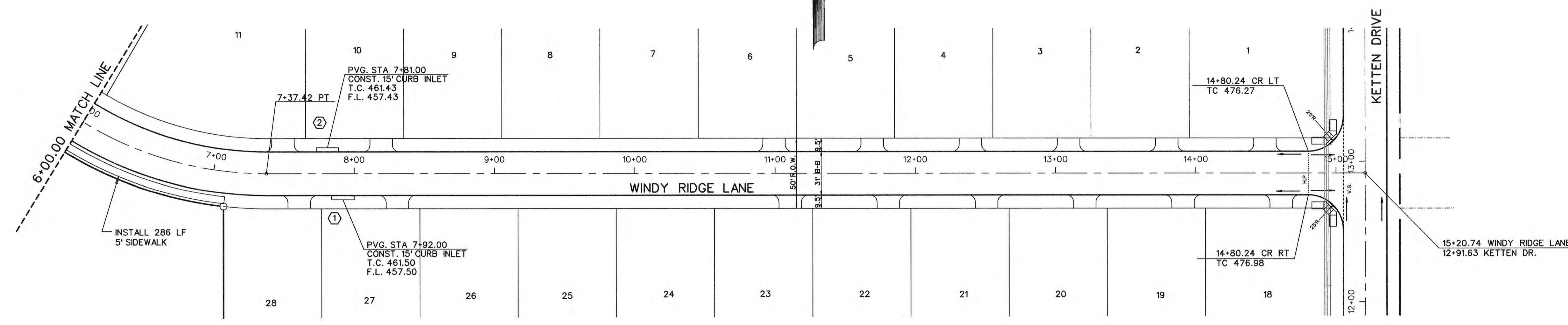
DEVELOPMENT PLANS FOR
**BREEZY HILL
PHASE VI**
ROCKWALL, TEXAS

SUMMER OAKS DRIVE

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	6 OF 28
15054	JANUARY 2017		

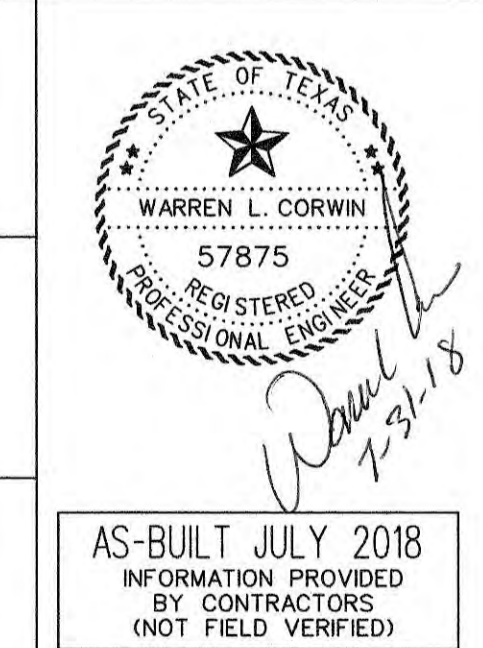
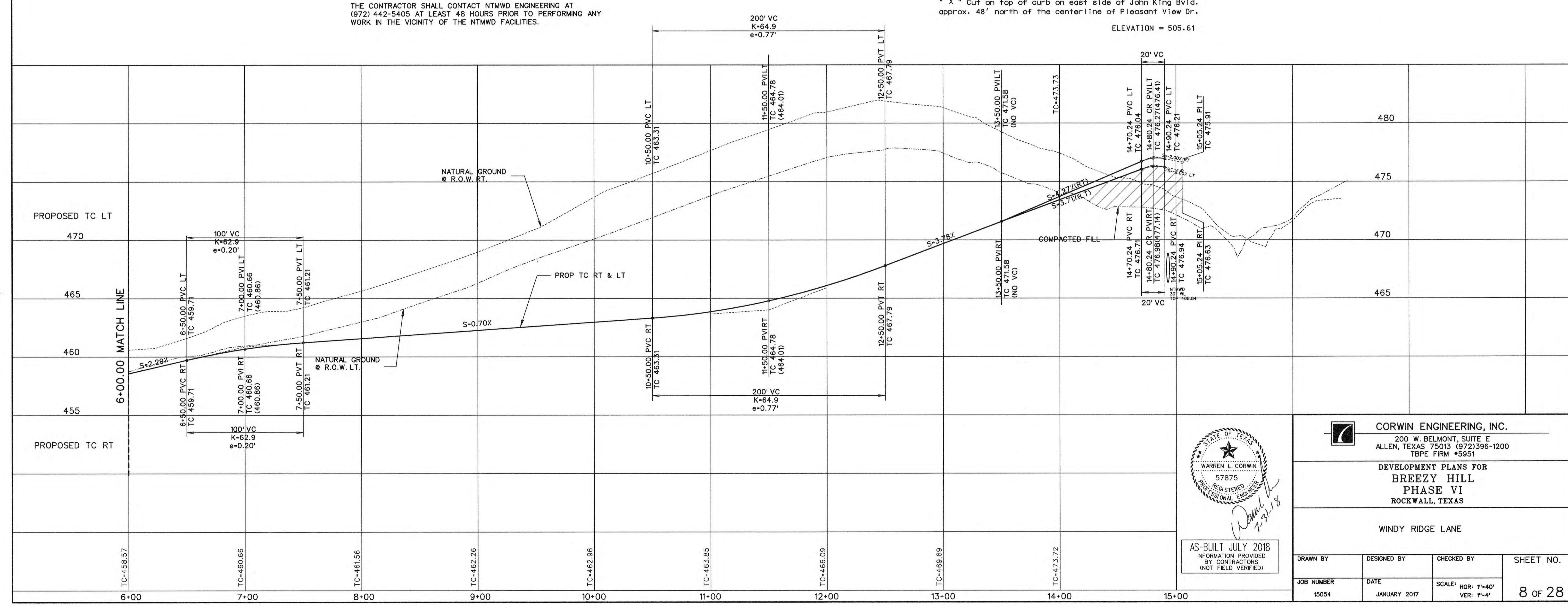


SCALE: 1" = 40'



NOTE:
THE CONTRACTOR SHALL CONTACT NTMWD ENGINEERING AT (972) 442-5405 AT LEAST 48 HOURS PRIOR TO PERFORMING ANY WORK IN THE VICINITY OF THE NTMWD FACILITIES.

BENCHMARK:
" X " Cut on top of curb on east side of John King Blvd.
approx. 48' north of the centerline of Pleasant View Dr.
ELEVATION = 505.61

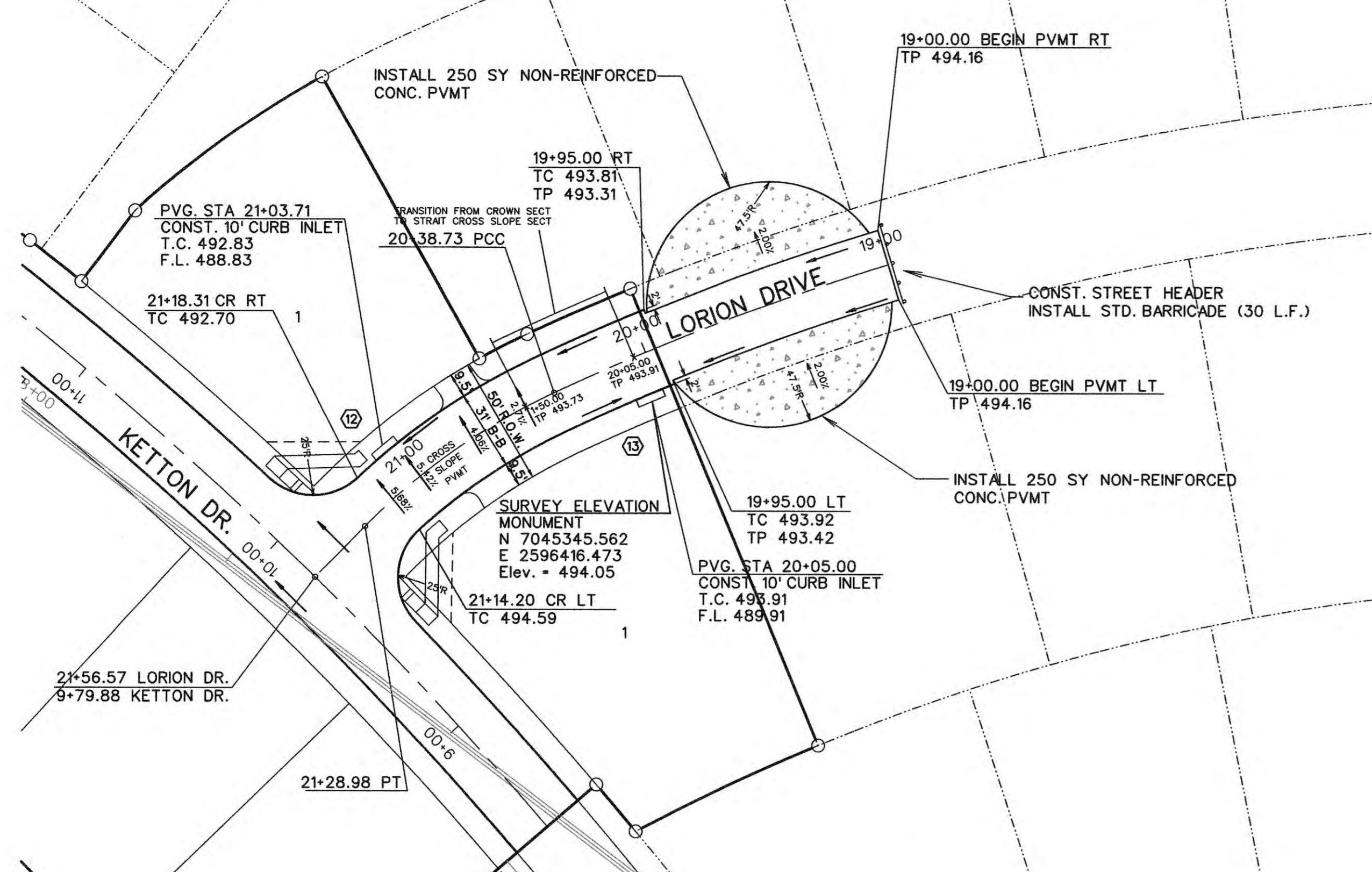
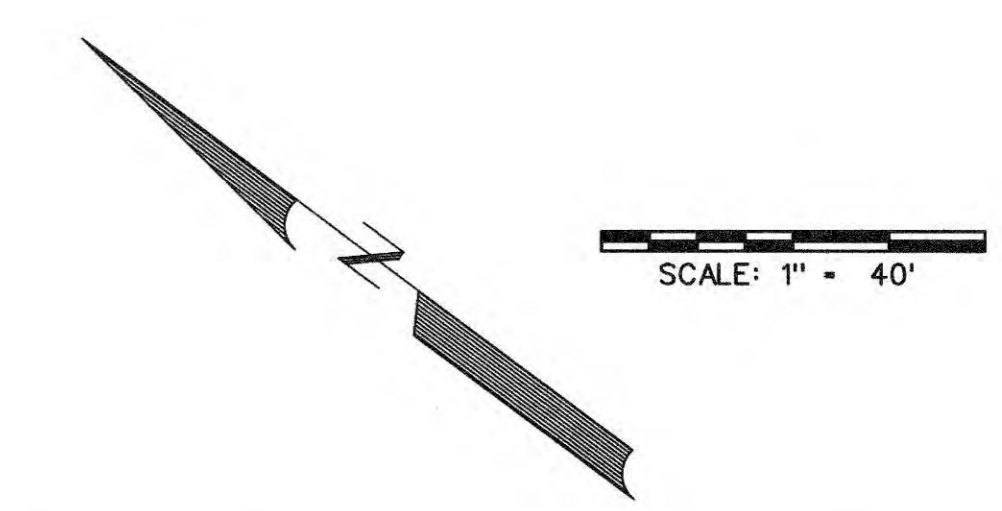


CORWIN ENGINEERING, INC.
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200
TBPE FIRM #5951

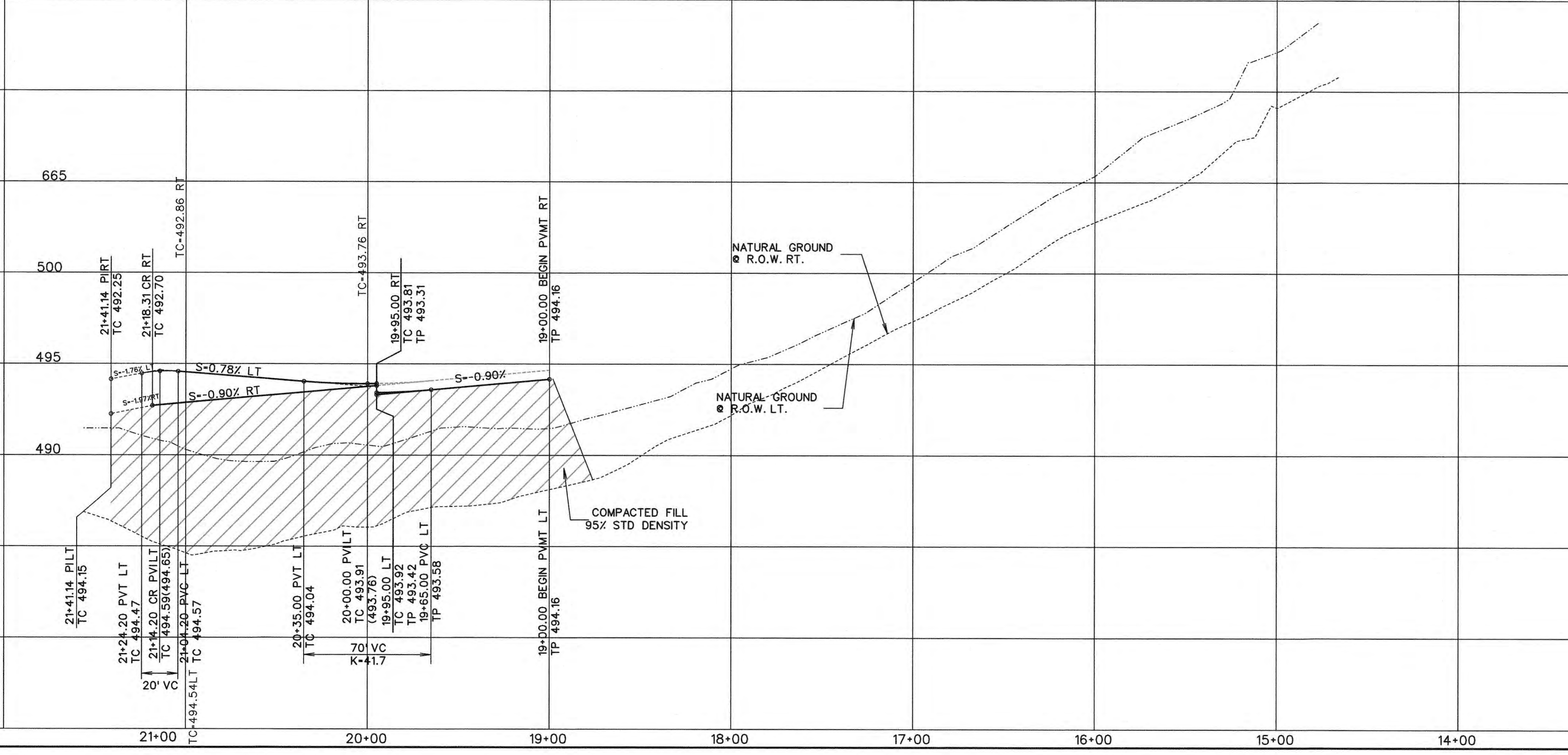
DEVELOPMENT PLANS FOR
**BREEZY HILL
PHASE VI**
ROCKWALL, TEXAS

WINDY RIDGE LANE

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	8 OF 28
15054	JANUARY 2017		



BENCHMARK:
 " X " Cut on top of curb on east side of John King Blvd.
 approx. 48' north of the centerline of Pleasant View Dr.
 ELEVATION = 505.61



1	ADDED SHEET TO PLANS	3-25-17
NO.	REVISIONS	DATE



AS-BUILT JULY 2018
 INFORMATION PROVIDED
 BY CONTRACTORS
 (NOT FIELD VERIFIED)

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

DEVELOPMENT PLANS FOR
**BREZY HILL
 PHASE VI**
 ROCKWALL, TEXAS

LORION DRIVE

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	8B of 28
15054	JANUARY 2017		

LEGEND

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

0 50 100 200
SCALE: 1" = 100'

FORCE MAIN NOTES:

- CONTRACTOR TO ADJUST LOCATION OF FORCE MAIN TO AVOID EXISTING PUBLIC AND PRIVATE UTILITIES AS NECESSARY.
- CONTRACTOR TO USE MANUFACTURED BENDS. PIPE ALIGNMENT DEFLECTIONS SHOULD BE ACCOMPLISHED USING STANDARD FITTINGS AND BE PROPERLY RESTRAINED.
- ALL FORCE MAIN TO BE AWWA C-900 PIPE DR14, COLORED GREEN.
- INSTALL GREEN SANITARY SEWER MARKER POSTS APPROX. EVERY 250 FEET ABOVE FORCE MAIN.
- DETECTOR TAPE SHALL BE REQUIRED ALONG FORCE MAIN. SEE TCEQ 217.66
- ALL TESTING TO BE PER CITY OF ROCKWALL REQUIREMENTS.

NOTE:

THE CONTRACTOR SHALL CONTACT NTMWD ENGINEERING AT (972) 442-5405 AT LEAST 48 HOURS PRIOR TO PERFORMING ANY WORK IN THE VICINITY OF THE NTMWD FACILITIES.

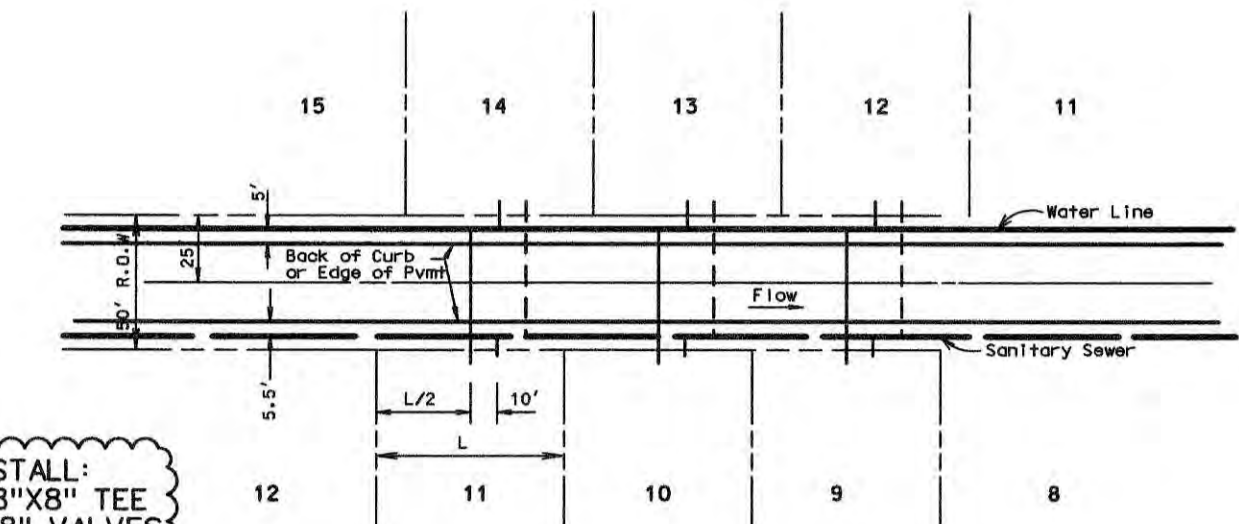
NOTE:

THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES FOR LOCATION AND ELEVATION PRIOR TO CONSTRUCTION. ALL UNDERGROUND UTILITIES SHOWN ARE FROM AS-BUILT PLANS AND NOT FIELD VERIFIED.

BENCHMARK:

" X " Cut on top of curb on east side of John King Blvd. approx. 48' north of the centerline of Pleasant View Dr.

ELEVATION = 505.61



TYPICAL WATER & SEWER SERVICE LAYOUT
N.T.S.

CURVE TABLE

CURVE NO.	DELTA	RADIUS	LENGTH	TANGENT
1.	17°23'15"	229.00'	69.49'	35.02'
2.	12°53'07"	229.00'	51.50'	25.86'
3.	30°16'22"	321.00'	169.60'	86.83'
4.	21°22'15"	321.00'	119.54'	60.47'
5.	73°50'38"	229.00'	295.14'	172.08'

NOTE:

ALL WATER LINES TO BE C-900 CLASS 200 PIPE SDR 14.

ALL SANITARY SEWER PIPE TO BE SDR 35 FOR 5'-10" DEEP AND SDR 26 FOR 10' AND GREATER.

INSTALL BLUE "EMS" DISK ON WATER LINE AT EVERY 250' AND CHANGE IN DIRECTION, VALVE, AND SERVICE.

INSTALL GREEN "EMS" DISK ON SANITARY SEWER LINE EVERY 250' AND AT EVERY CHANGE IN DIRECTION, MANHOLE, CLEANOUT, AND SERVICE.

ALL MANHOLES TO BE RAVEN EPOXY LINED AND SEALED.

NOTES FOR CONSTRUCTION WITH THE NORTH TEXAS MUNICIPAL WATER DISTRICT EASEMENT

A. North Texas Municipal Water District (NTMWD)'s 30-inch water transmission pipeline is located within the limits of construction.

B. Operation of heavy earthmoving equipment, compaction equipment or heavy construction equipment, such as concrete trucks, shall be restricted to specific crossing points across NTMWD easements, as approved by the NTMWD. The crossing shall be designated and verified to provide a minimum of five-feet of cover.

C. To assure that placing of significant loads over the NTMWD pipeline does not damage the existing pipeline, no materials shall be stockpiled on the NTMWD easement, without authorization from the NTMWD. If the contractor desires to use NTMWD's easement for stockpile of materials, contact NTMWD's Engineering Department at (972) 442-5405 so your plans for use of NTMWD's easement can be reviewed.

D. A minimum of three feet separation between the bottom of the pavement and top of NTMWD pipeline is required. In addition, if separation between the bottom of the pavement and the top of the pipeline is less than 3.5 feet, a thickened pavement section is required.

E. Crossing of the NTMWD easement with other utilities, such as TV cable, phone, gas and electric, shall be coordinated with the NTMWD to avoid damage to the NTMWD facilities.

F. Outdoor lighting, landscaping, screening walls or other facilities shall not be installed in NTMWD easements without written approval of the NTMWD.

G. Water and Sewer crossings of NTMWD 30" water shall maintain a minimum of two-foot clearance, storm water crossings shall maintain a minimum one-foot clearance, and all other utilities shall maintain a minimum two-foot clearance.

H. The contractor shall contact NTMWD Engineering at (972) 442-5405 at least 48 hours prior to performing any work in the vicinity of the NTMWD facilities.

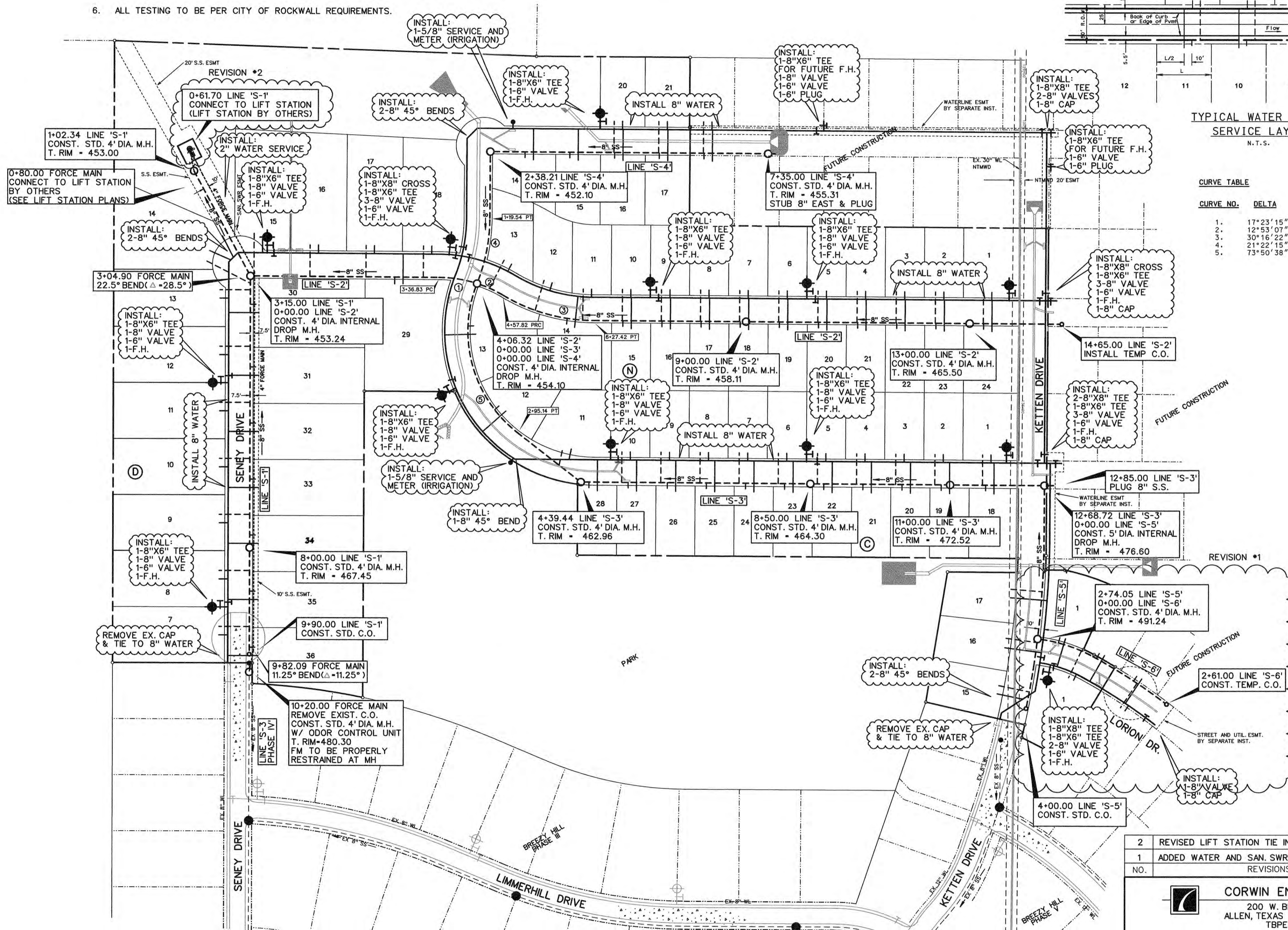
I. For open cut where crossing under the NTMWD pipeline, within ten feet either side of centerline of pipeline, the trench width to be cut shall be limited to four-foot vertical walls, no sloping bank with the appropriate trench safety. The entire excavation within the limits noted above shall be backfilled with gravel to one-foot above top of NTMWD pipeline. One-foot minimum vertical clearance is required between NTMWD pipeline and proposed utilities.

J. Limits of bore shall be a minimum of the NTMWD easement width centered on NTMWD's pipeline.

K. The casing pipe shall terminate outside of NTMWD's easement.

L. All proposed sanitary sewer crossings where installed above NTMWD's pipeline shall be comprised of a minimum 150-PSI pressure rated carrier pipe and casing pipe. Installation of this carrier pipe and casing pipe shall be installed across the entire NTMWD easement.

M. Water and sewer lines crossing the NTMWD easement shall be installed in compliance with the Rules and Regulations for Public Water Systems Paragraph 290.44 (e), Location of Water Lines.



SERVICE SCHEDULE

TYPE	SIZE	NO.
SANITARY	4"	78
WATER	1"	85

NO.	REVISIONS	BY	DATE

AS-BUILT JULY 2018
INFORMATION PROVIDED BY CONTRACTORS (NOT FIELD VERIFIED)

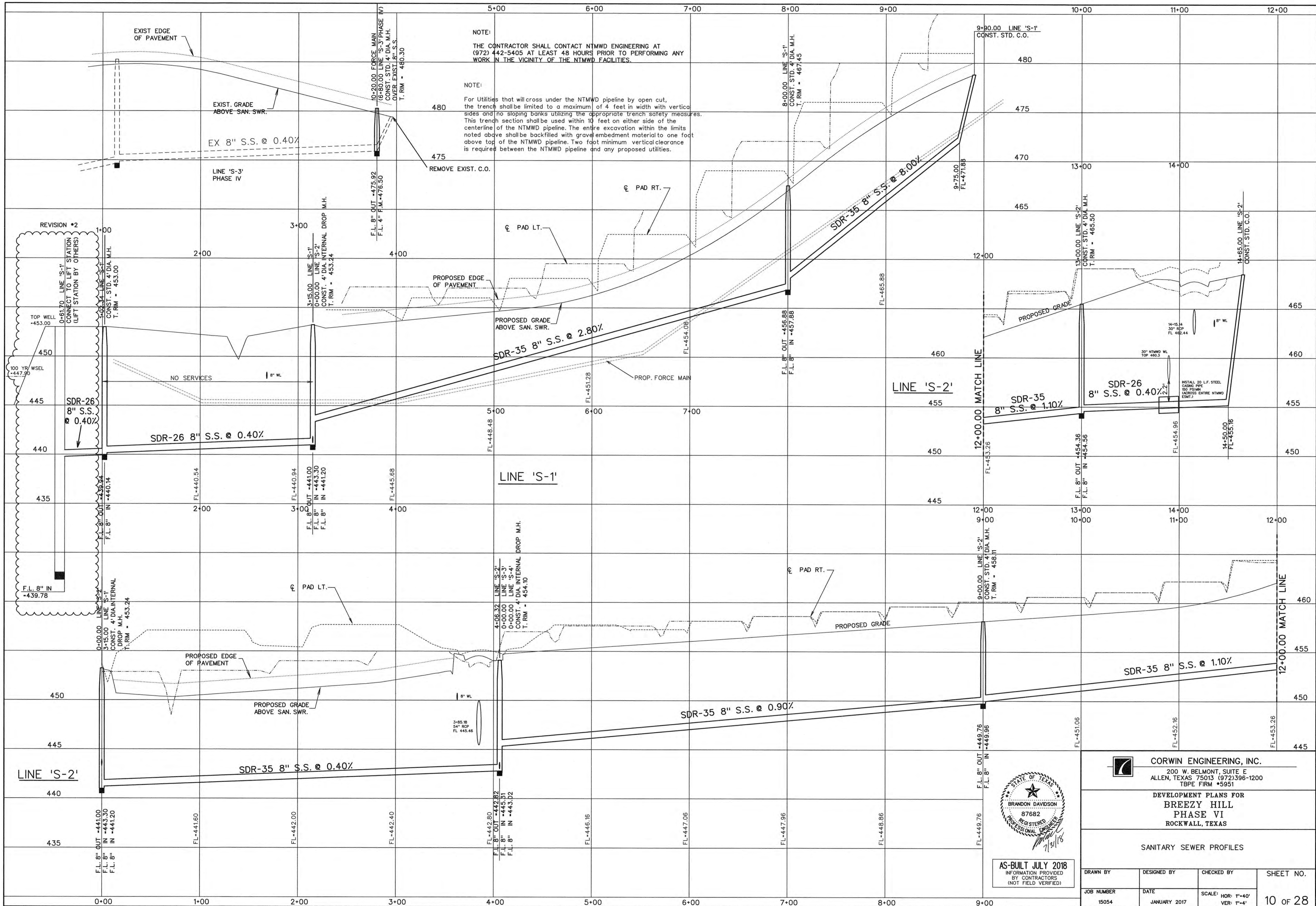
NO.	REVISIONS	DATE
2	REVISED LIFT STATION TIE IN	7-20-17
1	ADDED WATER AND SAN SWR TO LORION DR.	4-10-17

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

DEVELOPMENT PLANS FOR BREEZY HILL PHASE VI
ROCKWALL, TEXAS

WATER AND SANITARY SEWER PLAN

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE	9 OF 28



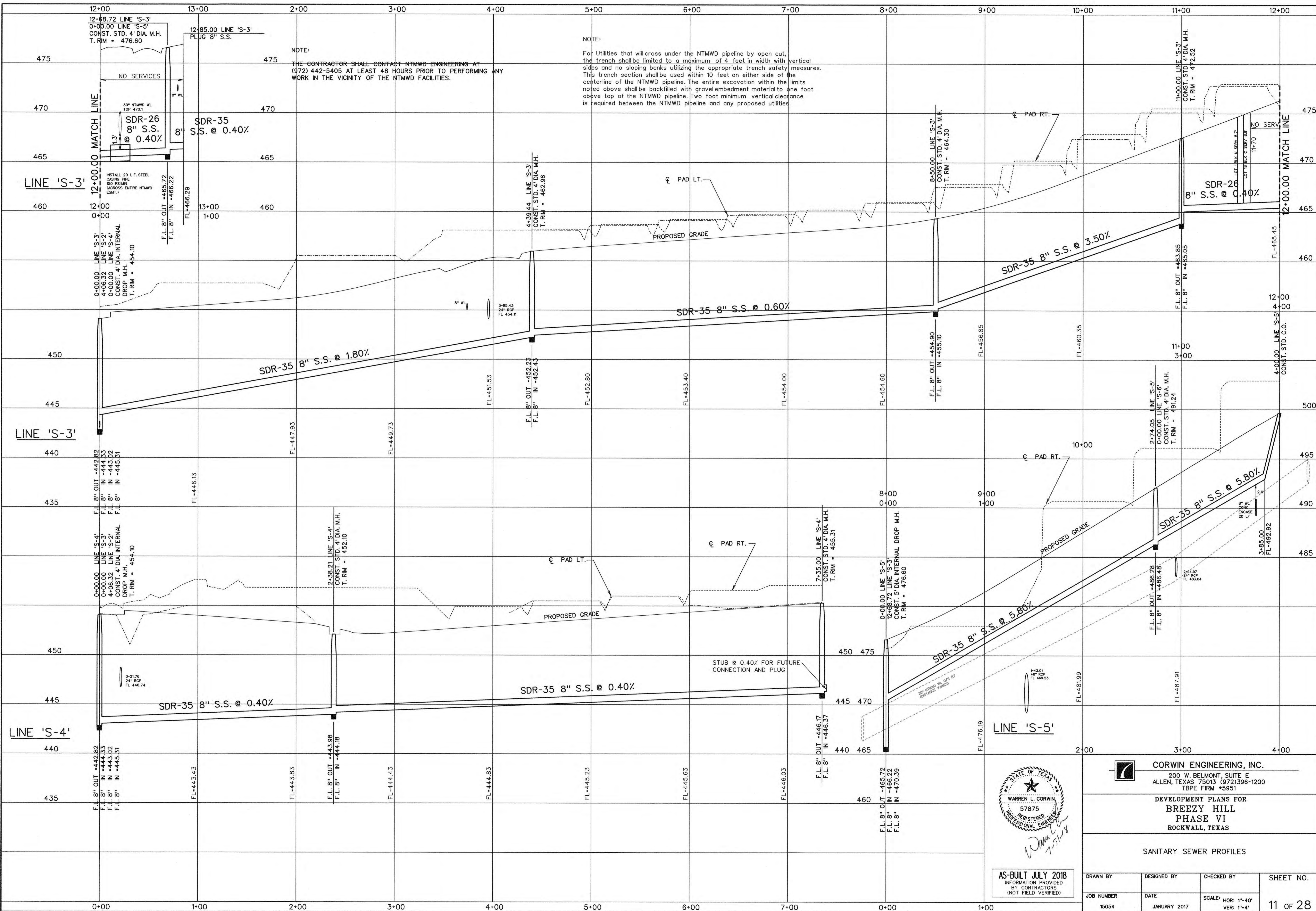
AS-BUILT JULY 2018
 INFORMATION PROVIDED
 BY CONTRACTORS
 (NOT FIELD VERIFIED)

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

DEVELOPMENT PLANS FOR
**BREEZY HILL
 PHASE VI**
 ROCKWALL, TEXAS

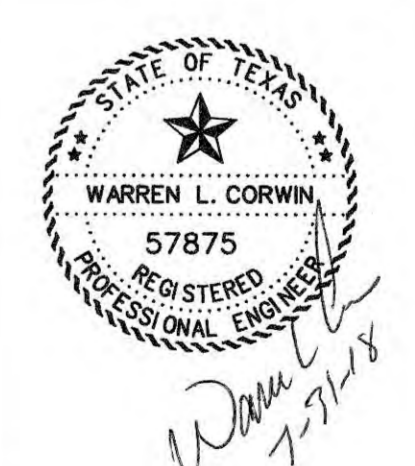
SANITARY SEWER PROFILES

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40'	10 of 28
15054	JANUARY 2017	VER: 1"=4'	



NOTE:
 THE CONTRACTOR SHALL CONTACT NTMWD ENGINEERING AT (972) 442-5405 AT LEAST 48 HOURS PRIOR TO PERFORMING ANY WORK IN THE VICINITY OF THE NTMWD FACILITIES.

NOTE:
 For Utilities that will cross under the NTMWD pipeline by open cut, the trench shall be limited to a maximum of 4 feet in width with vertical sides and no sloping banks utilizing the appropriate trench safety measures. This trench section shall be used within 10 feet on either side of the centerline of the NTMWD pipeline. The entire excavation within the limits noted above shall be backfilled with gravel embedment material to one foot above top of the NTMWD pipeline. Two foot minimum vertical clearance is required between the NTMWD pipeline and any proposed utilities.



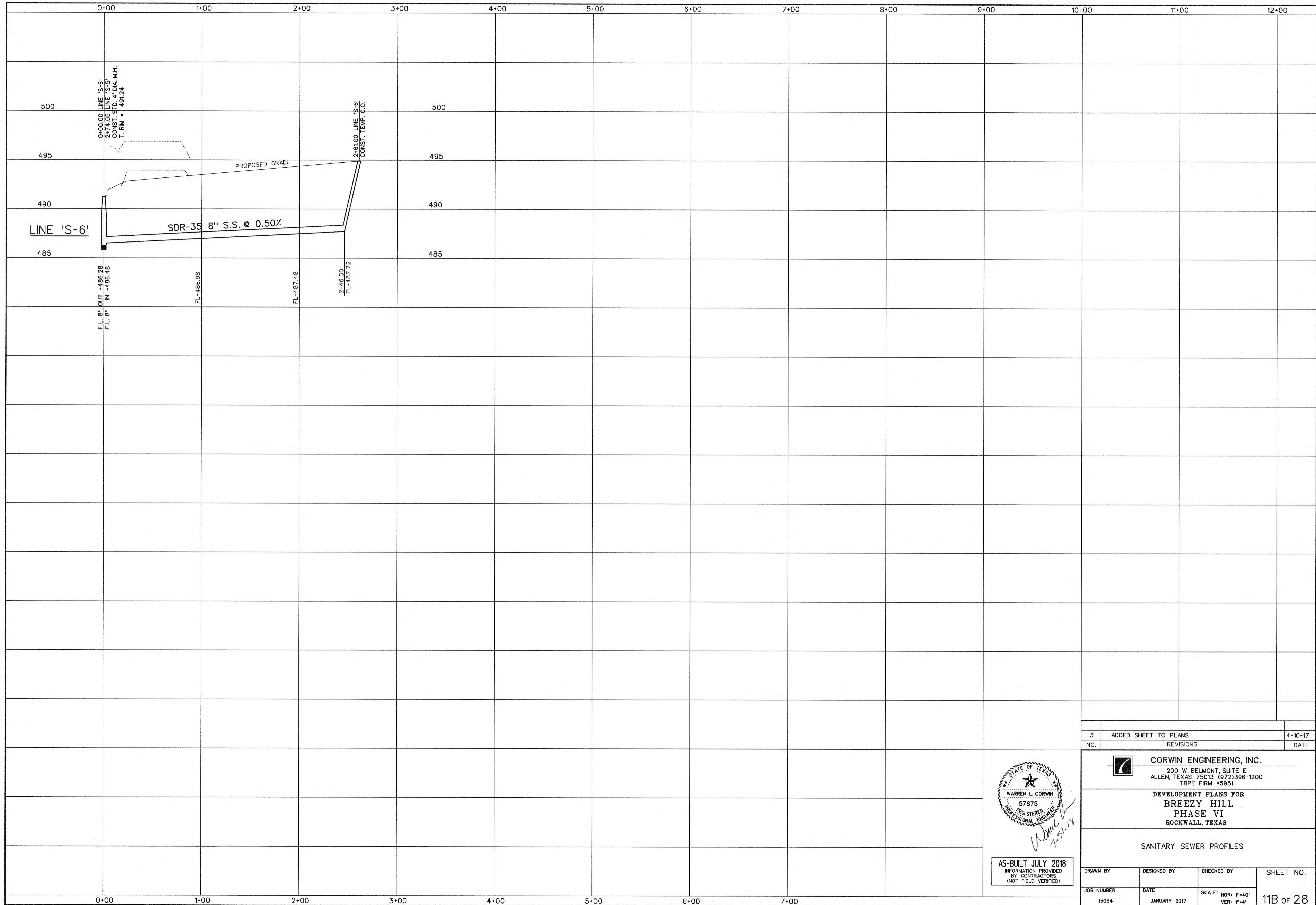
AS-BUILT JULY 2018
 INFORMATION PROVIDED BY CONTRACTORS (NOT FIELD VERIFIED)

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

DEVELOPMENT PLANS FOR
**BREEZY HILL
 PHASE VI**
 ROCKWALL, TEXAS

SANITARY SEWER PROFILES

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	11 OF 28
15054	JANUARY 2017		



3	ADDED SHEET TO PLANS	4-10-17
NO.	REVISIONS	DATE



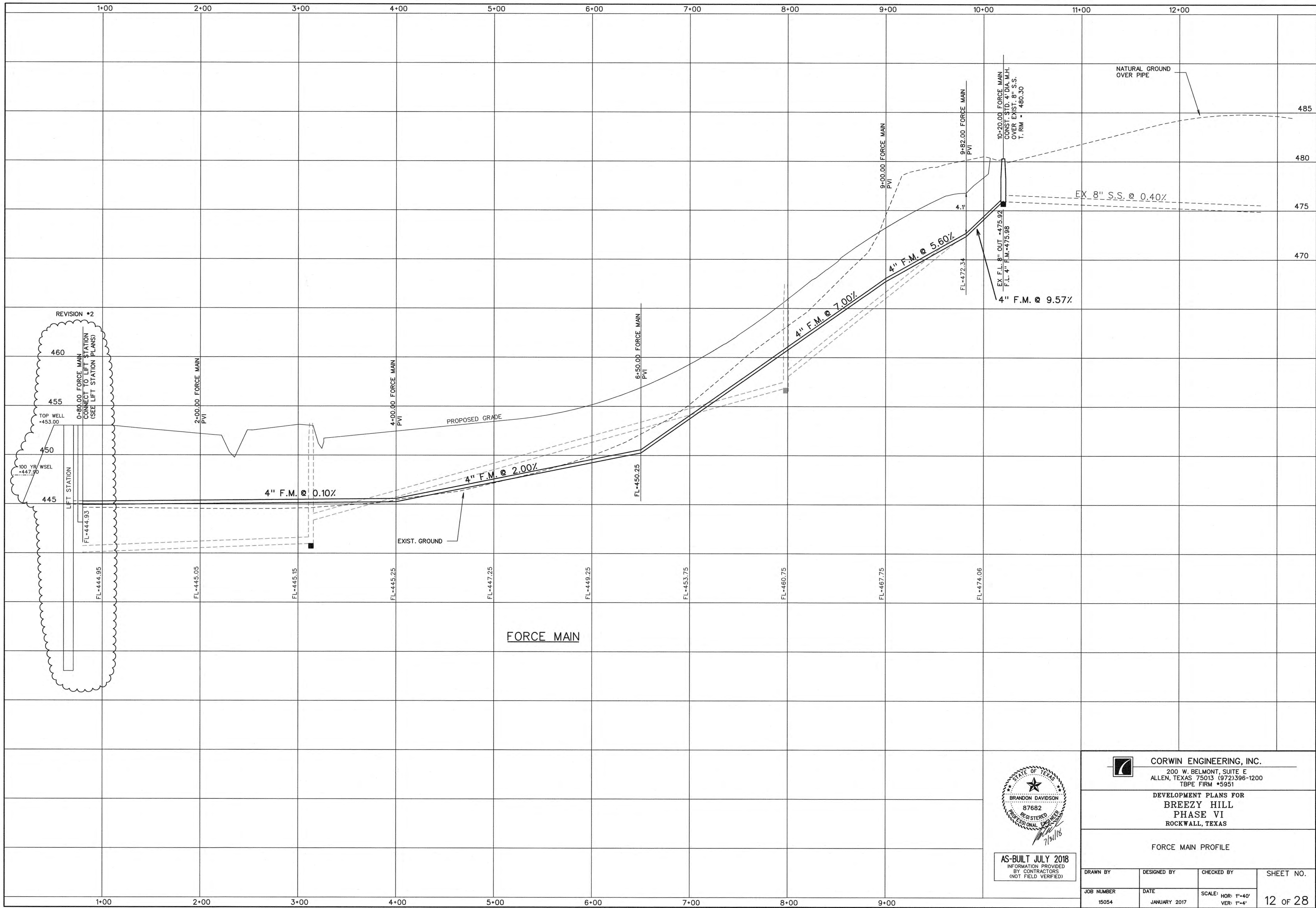
CORWIN ENGINEERING, INC.
 200 W. BELMONT, SUITE E
 ALLEN, TEXAS 75013 (972)396-1200
 TBPE FIRM #5951

DEVELOPMENT PLANS FOR
BREEZY HILL
 PHASE VI
 ROCKWALL, TEXAS

SANITARY SEWER PROFILES

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 15054	DATE JANUARY 2017	SCALE: HOR: 1"=40' VER: 1"=4'	11B OF 28

AS-BUILT JULY 2018
 INFORMATION PROVIDED
 BY CONTRACTORS
 (NOT FIELD VERIFIED)



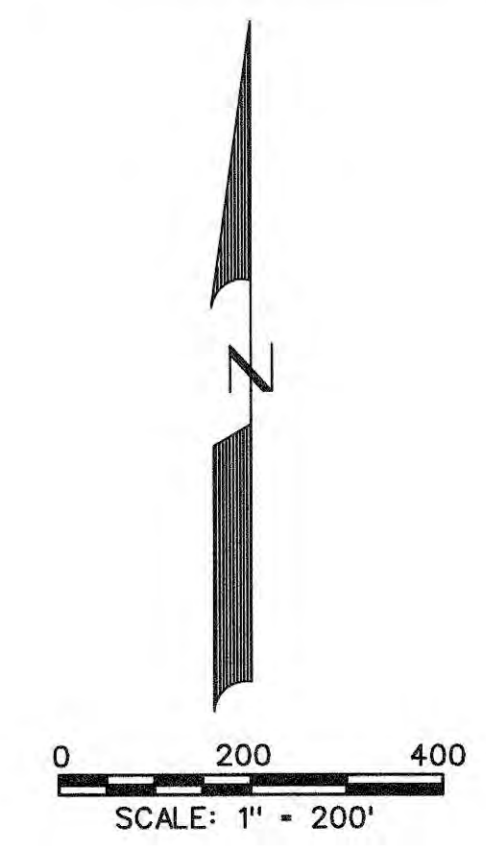
AS-BUILT JULY 2018
 INFORMATION PROVIDED BY CONTRACTORS (NOT FIELD VERIFIED)

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

DEVELOPMENT PLANS FOR
BREEZY HILL
PHASE VI
 ROCKWALL, TEXAS

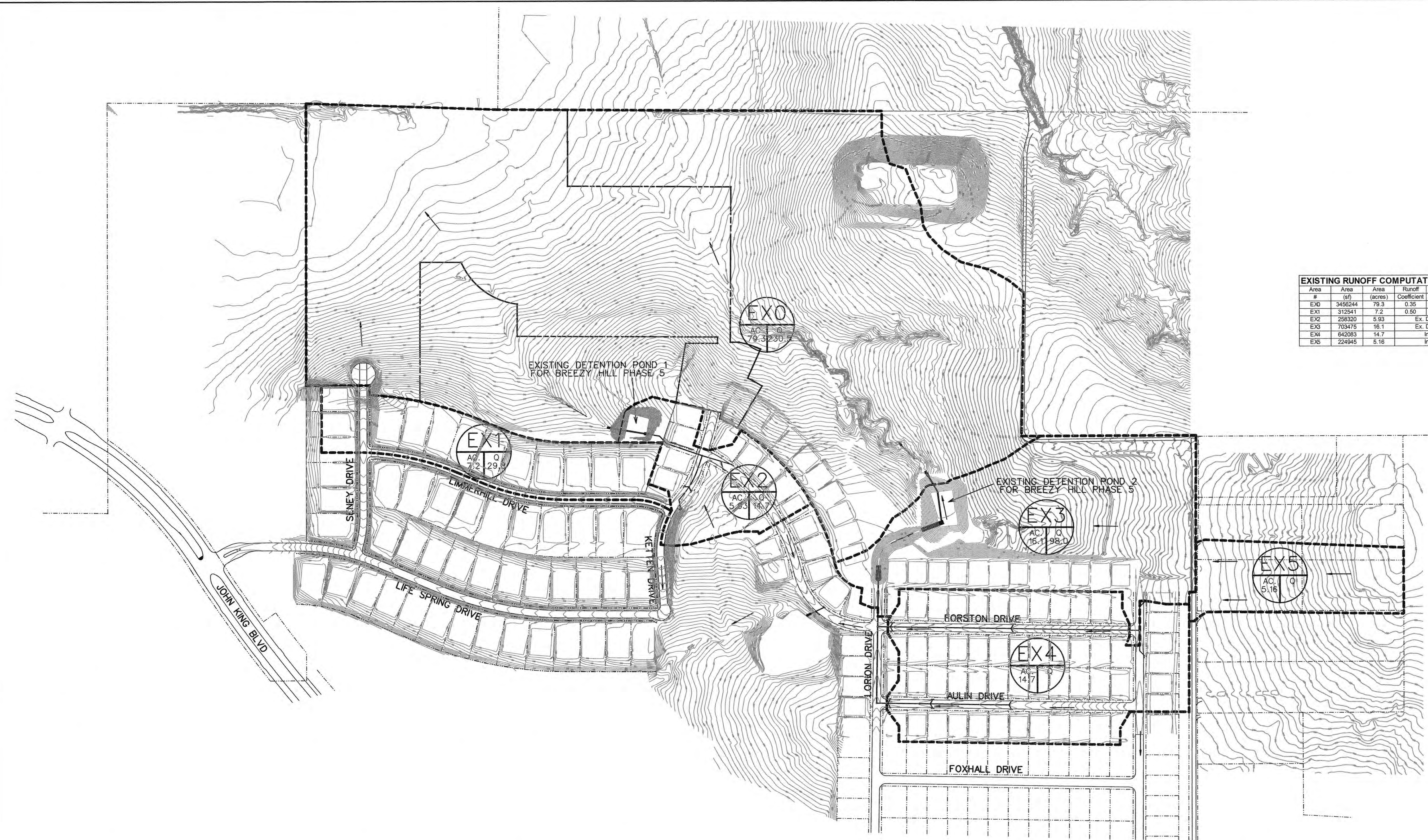
FORCE MAIN PROFILE

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	12 OF 28
15054	JANUARY 2017		



EXISTING RUNOFF COMPUTATIONS

Area #	Area (sf)	Area (acres)	Runoff Coefficient	CA (in/hr)	Tc (min)	I(100) (cfs)	Q(100) (cfs)	Drains To:
EX0	3456244	79.3	0.35	27.77	20	8.30	230.5	Existing Creek
EX1	312541	7.2	0.50	3.59	20	8.30	29.8	Existing Creek
EX2	258320	5.93					14.7	Detention Pond 1, Phase 5
EX3	703475	16.1					96.4	Detention Pond 2, Phase 5
EX4	642083	14.7						Included in Area 24 Q(100)
EX5	224945	5.16						Included in Area 24 Q(100)



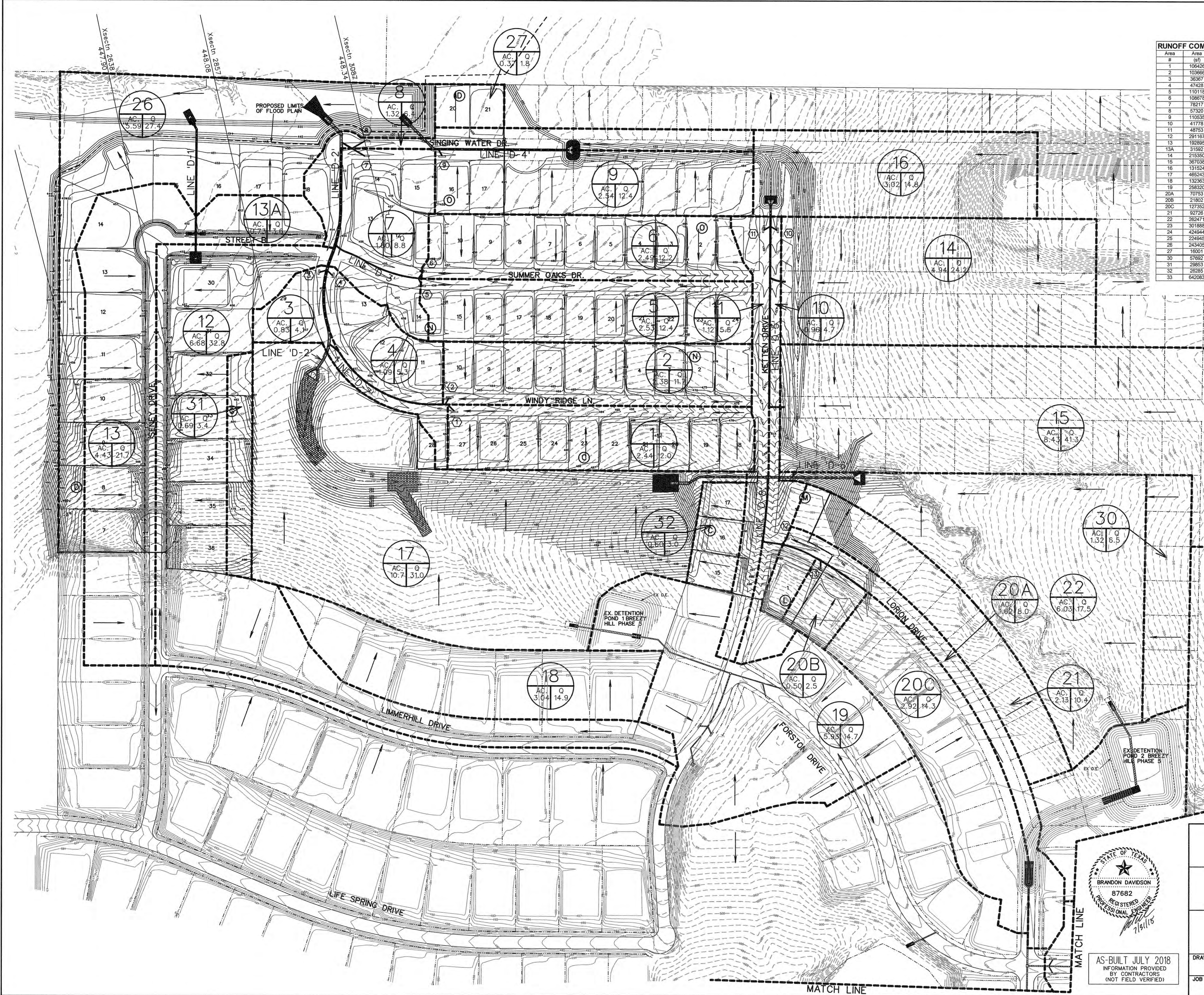
LEGEND

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

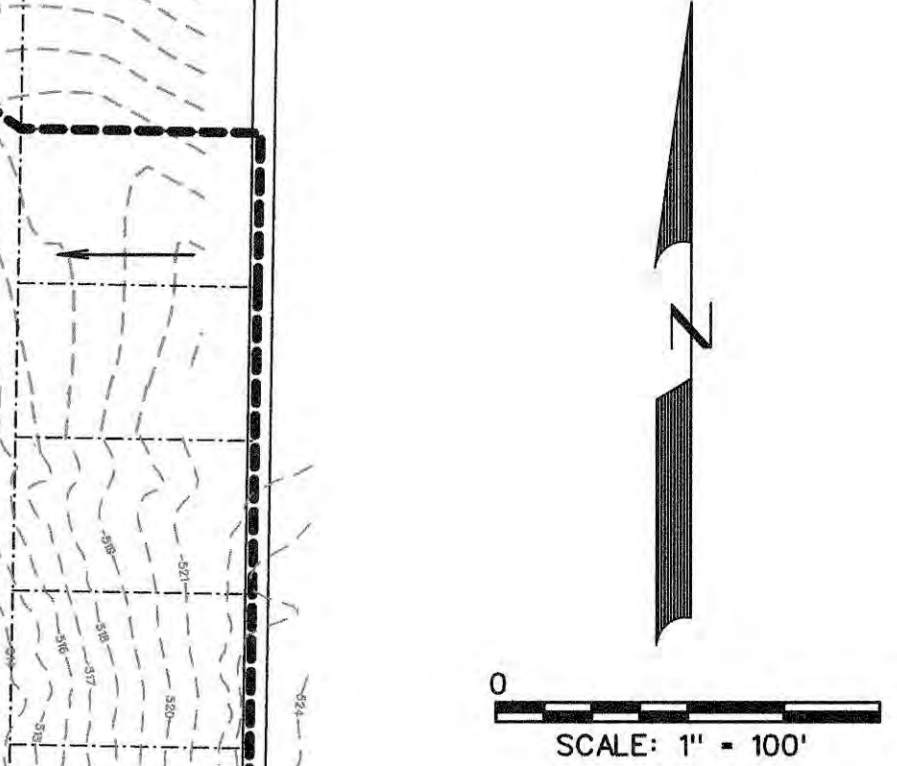


AS-BUILT JULY 2018
 INFORMATION PROVIDED
 BY CONTRACTORS
 (NOT FIELD VERIFIED)

CORWIN ENGINEERING, INC. 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972)396-1200 TBPE FIRM #5951			
DEVELOPMENT PLANS FOR BREEZY HILL PHASE VI ROCKWALL, TEXAS			
EXISTING CONDITIONS DRAINAGE AREA MAP			
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 15054	DATE JANUARY 2017	SCALE: 1"=200'	13 OF 28



RUNOFF COMPUTATIONS									
Area #	Area (sq)	Area (acres)	Runoff Coefficient	CA	Tc (min)	I(100) (in/hr)	Q(100) (cfs)	Drains To:	
1	106426	2.44	0.50	1.22	10	9.80	12.0	Inlet 1	
2	103666	2.38	0.50	1.19	10	9.80	11.7	Inlet 2	
3	36367	0.83	0.50	0.42	10	9.80	4.1	Inlet 3	
4	47428	1.09	0.50	0.54	10	9.80	5.3	Inlet 4	
5	110118	2.53	0.50	1.26	10	9.80	12.4	Inlet 5	
6	108878	2.49	0.50	1.25	10	9.80	12.2	Inlet 6	
7	78217	1.80	0.50	0.90	10	9.80	8.8	Inlet 7	
8	57320	1.32	0.50	0.66	10	9.80	6.4	Inlet 8	
9	110535	2.54	0.50	1.27	10	9.80	12.4	Inlet 9	
10	41778	0.96	0.50	0.48	10	9.80	4.7	Inlet 10	
11	48753	1.12	0.50	0.56	10	9.80	5.5	Inlet 11	
12	291167	6.68	0.50	3.34	10	9.80	32.8	Line D1	
13	152895	4.43	0.50	2.21	10	9.80	21.7	Line D1	
13A	31592	0.73	0.50	0.36	10	9.80	3.5	Line D1	
14	215350	4.94	0.50	2.47	10	9.80	24.2	Lat D5A	
15	367038	8.43	0.50	4.21	10	9.80	41.3	Line D5	
16	131524	3.02	0.50	1.51	10	9.80	14.8	Line D4	
17	465343	10.7	0.35	3.74	20	8.30	31.0	Line D2	
18	132363	3.04	0.50	1.52	10	9.80	14.9	Line D2	
19	258320	5.93					14.7	Detention Pond 1, Phase 5	
20A	70753	1.62	0.50	0.81	10	9.80	8.0	Inlet 12	
20B	21952	0.50	0.50	0.25	10	9.80	2.5	Inlet 13	
20C	122352	2.82	0.50	1.41	10	9.80	14.3	Line D8	
21	92726	2.13	0.50	1.06	10	9.80	10.4	Line D6	
22	282471	6.03	0.35	2.11	20	8.30	17.5	Line D6	
23	301888	6.93	0.50	3.47	10	9.80	34.0	Detention Pond 2, Phase 5	
24	426344	9.76					96.4	Detention Pond 2, Phase 5	
25	224945	5.16						Detention Pond 2, Phase 5	
26	243405	5.59	0.50	2.79	10	9.80	27.4	To Creek	
27	16001	0.37	0.50	0.18	10	9.80	1.8	To Creek	
30	57892	1.32	0.50	0.66	10	9.80	6.5	Line D6	
31	29653	0.69	0.50	0.34	10	9.80	3.4	Line D2	
32	28285	0.60	0.50	0.30	10	9.80	3.0	Line D2	
33	642083	14.7						Detention Pond 2, Phase 5	



MATCH LINE LEGEND	
	PROP. STORM SEWER
	PROP. CURB INLETS
	PROP. CONC. HEADWALL
	EXIST. STORM SEWER
	DRAINAGE AREA DIVIDE
	FLOW ARROW
	DRAINAGE AREA NO.

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

DEVELOPMENT PLANS FOR
**BREEZY HILL
 PHASE VI**
 ROCKWALL, TEXAS

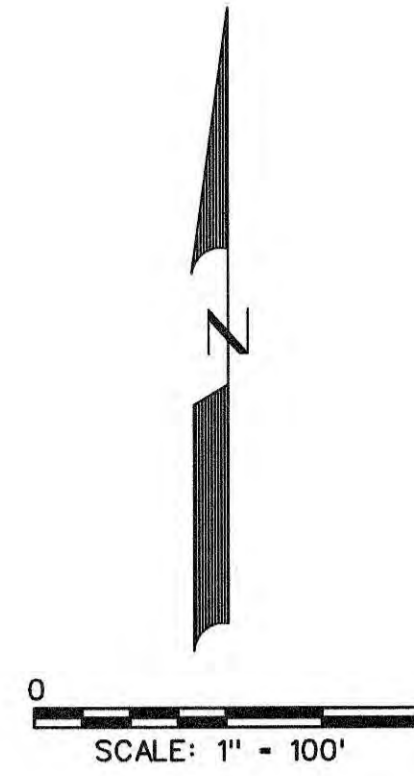
DRAINAGE AREA MAP
 ULTIMATE CONDITIONS

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE:	13A OF 28
15054	JANUARY 2017	1"=100'	



AS-BUILT JULY 2018
 INFORMATION PROVIDED
 BY CONTRACTORS
 (NOT FIELD VERIFIED)

RUNOFF COMPUTATIONS									
#	Area (sf)	Area (acres)	Coefficient	CA	Tc (min)	I(100) (in/hr)	Q(100) (cfs)	Drains To:	
1	106426	2.44	0.50	1.22	10	9.80	12.0	Inlet 1	
2	103666	2.38	0.50	1.19	10	9.80	11.7	Inlet 2	
3	36387	0.83	0.50	0.42	10	9.80	4.1	Inlet 3	
4	47426	1.06	0.50	0.54	10	9.80	5.3	Inlet 4	
5	110118	2.53	0.50	1.26	10	9.80	12.4	Inlet 5	
6	106678	2.49	0.50	1.25	10	9.80	12.2	Inlet 6	
7	78217	1.80	0.50	0.90	10	9.80	8.8	Inlet 7	
8	57320	1.32	0.50	0.66	10	9.80	6.4	Inlet 8	
9	110535	2.54	0.50	1.27	10	9.80	12.4	Inlet 9	
10	41776	0.96	0.50	0.48	10	9.80	4.7	Inlet 10	
11	48753	1.12	0.50	0.56	10	9.80	5.5	Inlet 11	
12	29187	0.68	0.50	0.34	10	9.80	3.2	Line D1	
13	192895	4.43	0.50	2.21	10	9.80	21.7	Line D1	
13A	31592	0.73	0.50	0.36	10	9.80	3.6	Line D1	
14	215350	4.94	0.50	2.47	10	9.80	24.2	Lat D6A	
15	367038	8.43	0.50	4.21	10	9.80	41.3	Line D5	
16	131524	3.02	0.50	1.51	10	9.80	14.8	Line D4	
17	465243	10.7	0.35	3.74	20	8.30	31.0	Line D2	
18	132363	3.04	0.50	1.52	10	9.80	14.9	Line D2	
19	256320	5.93					14.7	Detention Pond 1, Phase 5	
20A	70753	1.62	0.50	0.81	10	9.80	6.0	Inlet 12	
20B	21892	0.50	0.50	0.25	10	9.80	2.5	Inlet 13	
20C	127352	2.92	0.50	1.46	10	9.80	14.3	Line D6	
21	92726	2.13	0.50	1.06	10	9.80	10.4	Line D6	
22	262471	6.03	0.35	2.11	20	8.30	17.5	Line D6	
23	301868	6.93	0.50	3.47	10	9.80	34.0	Detention Pond 2, Phase 5	
24	424944	9.76					96.4	Detention Pond 2, Phase 5	
25	224845	5.16						Detention Pond 2, Phase 5	
26	243405	5.59	0.50	2.79	10	9.80	27.4	To Creek	
27	16001	0.37	0.50	0.18	10	9.80	1.8	To Creek	
30	57892	1.32	0.50	0.66	10	9.80	6.5	Line D6	
31	25853	0.69	0.50	0.34	10	9.80	3.4	Line D2	
32	26285	0.60	0.50	0.30	10	9.80	3.0	Line D2	
33	642083	14.7						Detention Pond 2, Phase 5	



- LEGEND**
- PROP. STORM SEWER
 - PROP. CURB INLETS
 - PROP. CONC. HEADWALL
 - EXIST. STORM SEWER
 - DRAINAGE AREA DIVIDE
 - FLOW ARROW
 - DRAINAGE AREA NO.



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

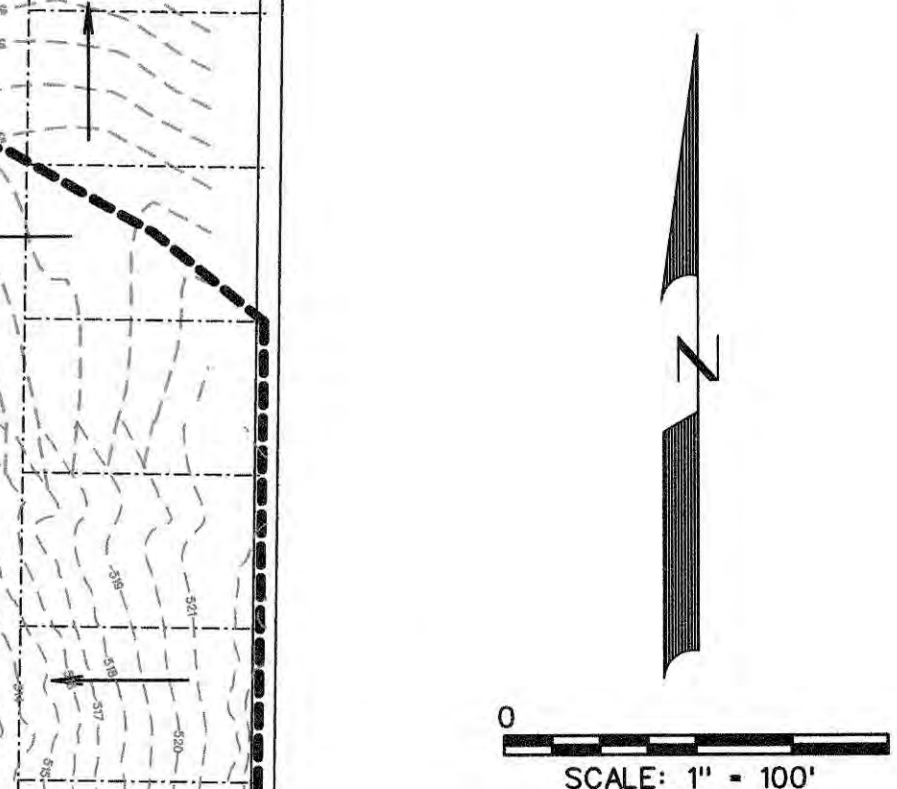
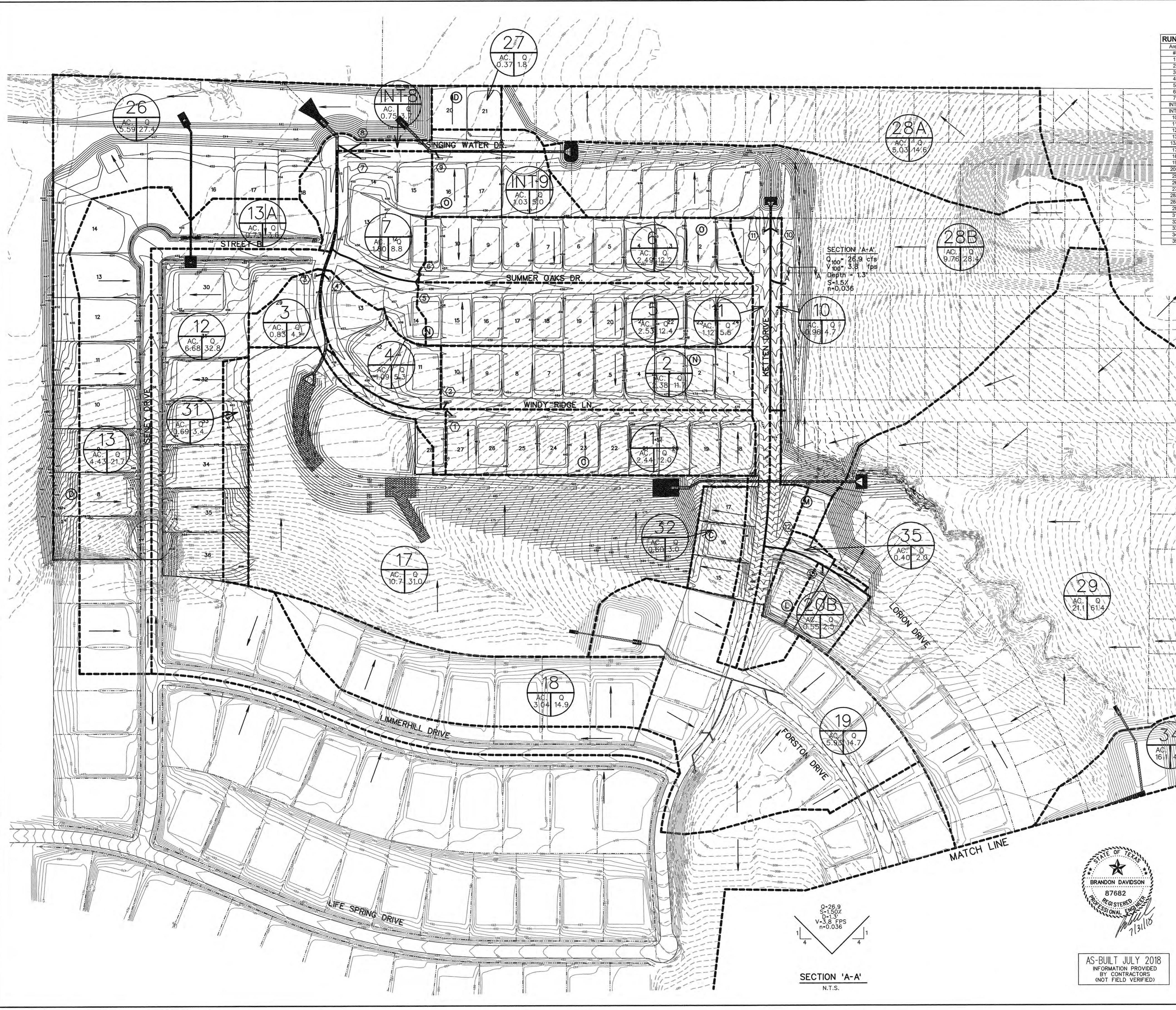
**DEVELOPMENT PLANS FOR
 BREEZY HILL
 PHASE VI
 ROCKWALL, TEXAS**

**DRAINAGE AREA MAP
 ULTIMATE CONDITIONS**

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE:	14 OF 28
15054	JANUARY 2017	1"=100'	

AS-BUILT JULY 2018
 INFORMATION PROVIDED
 BY CONTRACTORS
 (NOT FIELD VERIFIED)

RUNOFF COMPUTATIONS									
Area #	Area (ac)	Area (sq ft)	Runoff Coefficient	CA	Tc (min)	V(100) (in/hr)	Q(100) (cfs)	Drains To:	
1	106428	2.44	0.50	1.22	10	9.80	12.0	Inlet 1	
2	103666	2.38	0.50	1.19	10	9.80	11.7	Inlet 2	
3	36307	0.83	0.50	0.42	10	9.80	4.1	Inlet 3	
4	47428	1.08	0.50	0.54	10	9.80	5.3	Inlet 4	
5	110118	2.53	0.50	1.26	10	9.80	12.4	Inlet 5	
6	108678	2.49	0.50	1.25	10	9.80	12.2	Inlet 6	
7	78217	1.80	0.50	0.90	10	9.80	8.8	Inlet 7	
INT-8	32752	0.75	0.50	0.38	10	9.80	3.7	Inlet 8	
INT-9	44798	1.03	0.50	0.51	10	9.80	5.0	Inlet 9	
10	41760	0.96	0.50	0.48	10	9.80	4.7	Inlet 10	
11	48753	1.12	0.50	0.56	10	9.80	5.5	Inlet 11	
12	291167	6.68	0.50	3.34	10	9.80	32.8	Line D1	
13	192895	4.43	0.50	2.21	10	9.80	21.7	Line D1	
13A	31592	0.73	0.50	0.36	10	9.80	3.6	Line D1	
17	465243	10.7	0.35	3.74	20	8.30	31.0	Line D2	
18	132363	3.04	0.50	1.52	10	9.80	14.9	Line D2	
19	258320	5.93	Ex.	Detention Pond Release Rate	14.7	Detention Pond 1, Phase 5			
20B	21602	0.50	0.50	0.25	10	9.80	2.5	Inlet 13	
25	224945	5.16	Included in Area 24 Q(100)						
26	243405	5.59	0.50	2.79	10	9.80	27.4	To Creek	
27	16001	0.37	0.50	0.18	10	9.80	1.8	To Creek	
28A	218664	5.03	0.35	1.76	20	8.30	14.6	Interim to Creek	
28B	425163	9.76	0.35	3.42	20	8.30	28.4	Interim to Creek	
29	921097	21.1	0.35	7.40	20	8.30	61.4	Interim to Line D6	
31	23853	0.69	0.50	0.34	10	9.80	3.4	Line D2	
32	28285	0.69	0.50	0.30	10	9.80	3.0	Line D2	
33	642083	14.7	Included in Area 24 Q(100)						
34	703178	16.1	0.35	8.05	20	8.30	48.9	Detention Pond 2, Phase 5	
35	17447	0.40	0.50	0.20	10	9.80	2.0	Inlet 12	



LEGEND

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

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 TBPE FIRM #5951

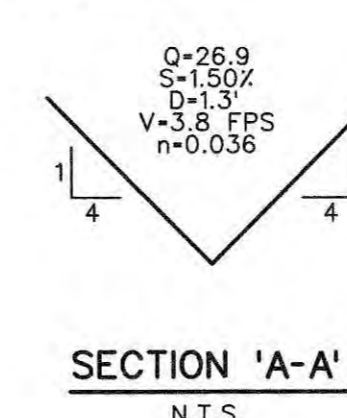
**DEVELOPMENT PLANS FOR
 BREEZY HILL
 PHASE VI
 ROCKWALL, TEXAS**

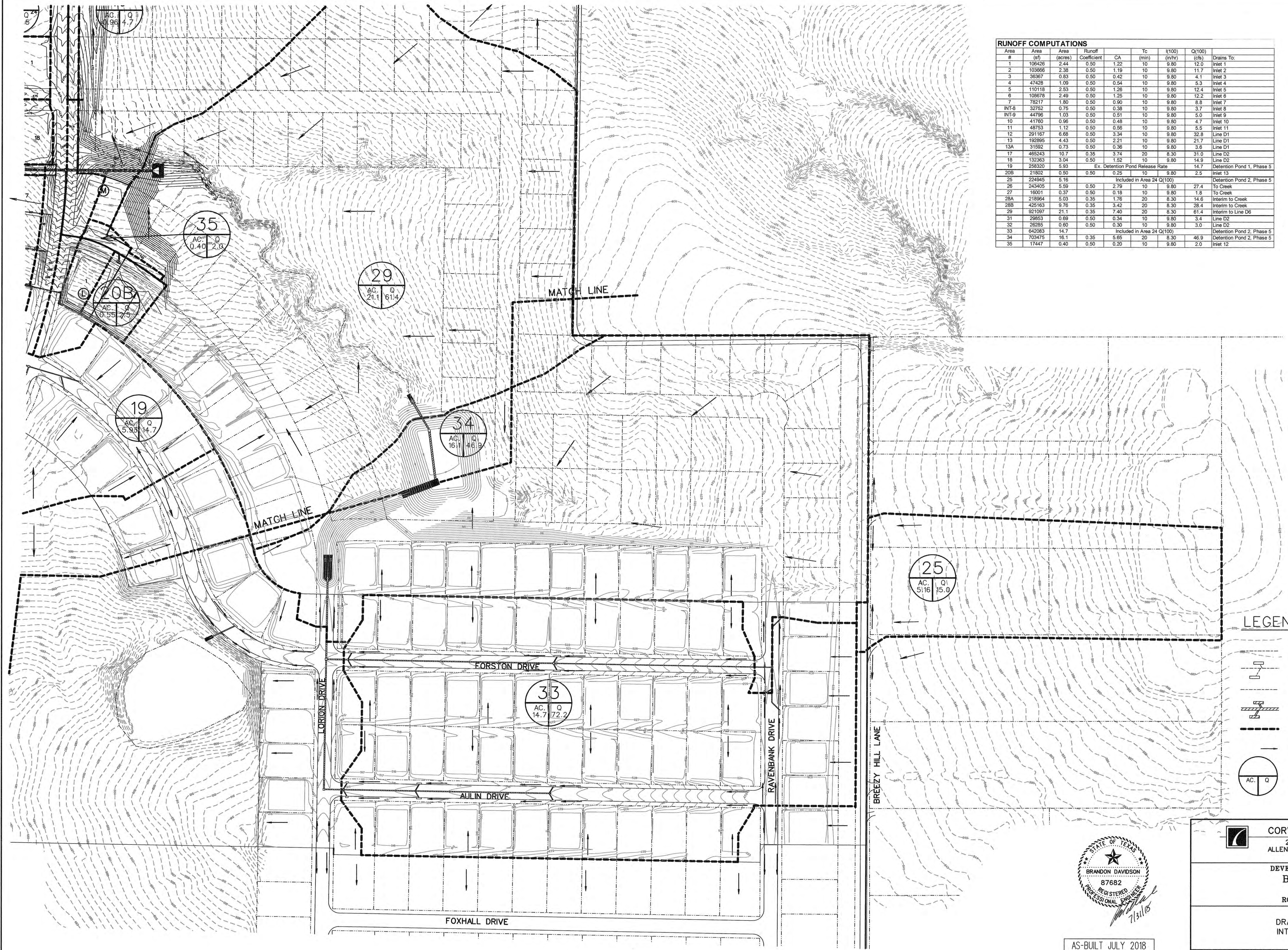
**DRAINAGE AREA MAP
 INTERIM CONDITIONS**

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE:	15 OF 28
15054	JANUARY 2017	1"=100'	

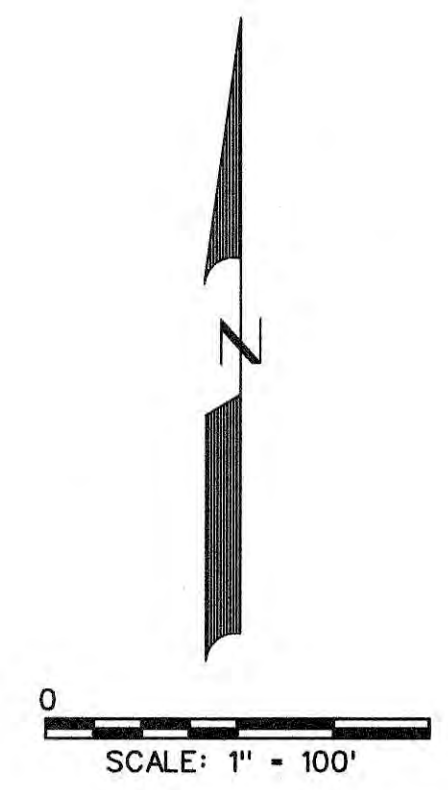


AS-BUILT JULY 2018
 INFORMATION PROVIDED
 BY CONTRACTORS
 (NOT FIELD VERIFIED)





Area #	Area (sf)	Area (acres)	Runoff Coefficient	CA	Tc (min)	I(100) (in/hr)	Q(100) (cfs)	Drains To:
1	109426	2.44	0.50	1.22	10	9.80	12.0	Inlet 1
2	103666	2.38	0.50	1.19	10	9.80	11.7	Inlet 2
3	36367	0.83	0.50	0.42	10	9.80	4.1	Inlet 3
4	47428	1.09	0.50	0.54	10	9.80	5.3	Inlet 4
5	110118	2.53	0.50	1.26	10	9.80	12.4	Inlet 5
6	109678	2.49	0.50	1.25	10	9.80	12.2	Inlet 6
7	78217	1.80	0.50	0.90	10	9.80	8.8	Inlet 7
INT-8	32752	0.75	0.50	0.38	10	9.80	3.7	Inlet 8
INT-9	44796	1.03	0.50	0.51	10	9.80	5.0	Inlet 9
10	41760	0.96	0.50	0.48	10	9.80	4.7	Inlet 10
11	48753	1.12	0.50	0.56	10	9.80	5.5	Inlet 11
12	291167	6.68	0.50	3.34	10	9.80	32.8	Line D1
13	192895	4.43	0.50	2.21	10	9.80	21.7	Line D1
13A	31592	0.73	0.50	0.36	10	9.80	3.6	Line D1
17	483243	10.7	0.35	3.74	20	8.30	31.0	Line D2
18	132363	3.04	0.50	1.52	10	9.80	14.9	Line D2
19	258320	5.93	0.50	2.96	10	9.80	25.5	Detention Pond 1, Phase 5
20B	21802	0.50	0.50	0.25	10	9.80	2.5	Inlet 13
25	224845	5.16	0.50	2.58	10	9.80	27.4	Detention Pond 2, Phase 5
26	243405	5.59	0.50	2.79	10	9.80	29.4	To Creek
27	16001	0.37	0.50	0.18	10	9.80	1.8	To Creek
28A	218964	5.03	0.35	1.76	20	8.30	14.6	Interim to Creek
28B	425163	9.76	0.35	3.42	20	8.30	28.4	Interim to Creek
29	921097	21.1	0.35	7.40	20	8.30	61.4	Interim to Line D6
31	29853	0.69	0.50	0.34	10	9.80	3.4	Line D2
32	26285	0.60	0.50	0.30	10	9.80	3.0	Line D2
33	642083	14.7	0.50	7.35	10	9.80	46.9	Detention Pond 2, Phase 5
34	703475	16.1	0.35	5.65	20	8.30	46.9	Detention Pond 2, Phase 5
35	17447	0.40	0.50	0.20	10	9.80	2.0	Inlet 12



- LEGEND**
- PROP. STORM SEWER
 - PROP. CURB INLETS
 - PROP. CONC. HEADWALL
 - EXIST. STORM SEWER
 - DRAINAGE AREA DIVIDE
 - FLOW ARROW
 - DRAINAGE AREA NO.



AS-BUILT JULY 2018
 INFORMATION PROVIDED
 BY CONTRACTORS
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CORWIN ENGINEERING, INC.
 200 W. BELMONT, SUITE E
 ALLEN, TEXAS 75013 (972)396-1200
 TBPE FIRM #5951

DEVELOPMENT PLANS FOR
**BREEZY HILL
 PHASE VI**
 ROCKWALL, TEXAS

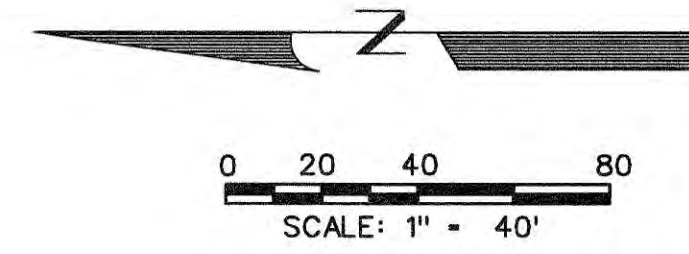
DRAINAGE AREA MAP
 INTERIM CONDITIONS

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE:	16 OF 28
15054	JANUARY 2017	1"=100'	

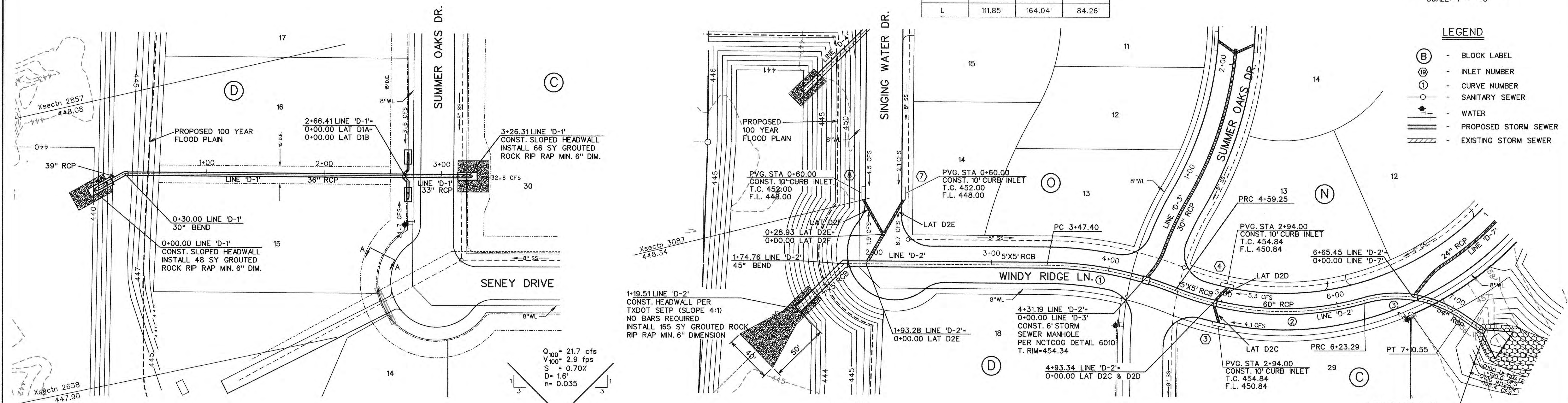
STORM SEWER CALCULATIONS

Upstream Station	Downstream Station	Distance (ft)	AREA NO.	Total Area (Acres)	Picked Up (Acres)	C	CA	Accumulated CA	Tc (Years)	Design Storm (in/hr)	I (CFS)	Q (cfs)	S (ft/ft)	Pipe Size (in)	Partial Flow?	Velocity (ft/s)	Flow Time (Min)	Velocity Head (ft)	Junction Type	K	Time at Dis (Min)	Minor Losses (ft)	Hydraulic Grade Upstream	Hydraulic Grade Downstream
1+24.31	2+66.41	59.50	12	6.68	6.68	0.50	3.34	3.34	10.00	100	9.80	32.0	0.0025	33	No	5.5	0.18	0.47	0.70	10.18	0.27	450.77	450.10	
2+66.41	1+90.00	166.41	13, 13A	5.15	5.15	0.50	2.58	5.92	10.19	100	9.77	57.8	0.0044	36	No	8.2	0.24	0.54	65° Wye	0.70	10.52	0.71	450.15	449.44
1+90.00	0+00.00	15.00	FVI	0.00	0.00	0.50	0.00	5.92	10.19	100	9.72	57.3	0.0044	36	No	8.2	0.24	0.54	65° Wye	0.70	10.52	0.71	450.15	449.44
0+00.00	0+00.00	30.00	Bend	0.00	0.00	0.50	0.00	5.92	10.19	100	9.76	57.4	0.0025	33	No	6.9	0.07	0.24	30° Bend	0.45	10.74	0.33	448.00	448.00
0+00.00	0+00.00	0.00	Lat D1A																					
0+22.07	0+07.07	15.00	13	4.43	4.43	0.50	2.21	2.21	10.00	100	9.80	21.7	0.0028	30	No	4.4	0.06	0.20	0.70	10.06	0.21	450.76	450.14	
0+07.07	0+00.00	7.07	Bend	0.00	0.00	0.50	0.00	2.21	10.06	100	9.79	21.7	0.0028	30	No	4.4	0.06	0.20	45° Bend	0.60	10.08	0.19	450.56	450.14
0+00.00	0+00.00	0.00	Lat D1B																					
0+32.07	0+07.07	15.00	13A	5.73	0.73	0.50	0.36	0.36	10.00	100	9.80	3.4	0.0031	18	No	3.0	0.12	0.08	0.70	10.12	0.04	450.55	450.51	
0+07.07	0+00.00	7.07	Bend	0.00	0.00	0.50	0.00	0.36	10.00	100	9.78	3.3	0.0031	18	No	2.7	0.06	0.06	45° Bend	0.60	10.18	0.06	450.48	450.45
0+00.00	0+00.00	0.00	Lat D2																					
1+33.34	0+45.45	68.51	Bk 17-19, 31, 32	72.06	72.06	0.50	27.54	27.54	33.00	100	6.90	190.0	0.0033	54	No	11.9	0.10	0.23	Headwall	0.50	30.10	1.11	454.58	453.47
0+45.45	0+33.34	12.11	07	4.82	4.82	0.50	2.41	29.95	33.00	100	6.89	206.3	0.0043	60	No	10.5	0.27	0.21	60° Wye	0.60	30.37	0.38	453.83	452.45
0+33.34	0+21.19	12.15	D2C, D1D	1.92	1.92	0.50	0.96	30.87	33.00	100	6.95	211.7	0.0040	54	No	9.6	0.12	0.16	60° Wye	0.60	30.49	0.13	451.37	451.24
0+21.19	0+09.04	12.15	05	5.82	5.82	0.50	2.91	34.44	33.00	100	6.83	228.3	0.0047	54	No	9.3	0.43	0.35	90° Wye	0.60	30.91	0.36	450.96	450.14
0+09.04	0+00.00	9.04	D1B	3.11	3.11	0.50	1.56	34.98	33.00	100	6.77	236.7	0.0050	54	No	9.7	0.07	0.15	60° Wye	0.60	30.55	0.64	449.22	448.58
0+00.00	0+00.00	0.00	Lat D2C																					
0+17.72	0+00.00	17.72	3	0.83	0.83	0.50	0.42	0.42	10.00	100	9.80	4.1	0.0015	18	No	2.7	0.13	0.08	Inlet	1.25	10.13	0.10	452.48	452.18
0+00.00	0+00.00	0.00	Lat D2D																					
0+18.10	0+00.00	18.10	4	1.09	1.09	0.50	0.54	0.54	10.00	100	9.80	5.3	0.0026	18	No	3.0	0.10	0.14	Inlet	1.25	10.18	0.10	452.54	452.18
0+00.00	0+00.00	0.00	Lat D2E																					
0+42.92	0+28.92	34.00	7	1.80	1.80	0.50	0.90	0.90	10.00	100	9.80	8.8	0.0030	18	No	5.0	0.11	0.28	Inlet	1.25	10.11	0.40	450.66	450.18
0+28.92	0+00.00	28.92	D1F	1.32	1.32	0.50	0.66	1.56	10.12	100	9.78	15.2	0.0048	24	No	4.7	0.40	0.34	60° Wye	0.60	10.21	0.60	449.21	448.38
0+00.00	0+00.00	0.00	Lat D2F																					
0+17.72	0+00.00	17.72	8	1.32	1.32	0.50	0.66	0.66	10.00	100	9.80	6.4	0.0038	18	No	3.6	0.08	0.21	Inlet	1.25	10.08	0.26	450.51	450.25
0+00.00	0+00.00	0.00	Lat D2G																					
0+42.92	0+28.92	34.00	7	1.80	1.80	0.50	0.90	0.90	10.00	100	9.80	8.8	0.0030	18	No	5.0	0.11	0.28	Inlet	1.25	10.11	0.40	450.66	450.18
0+28.92	0+00.00	28.92	D1F	1.32	1.32	0.50	0.66	1.56	10.12	100	9.78	15.2	0.0048	24	No	4.7	0.40	0.34	60° Wye	0.60	10.21	0.60	449.21	448.38
0+00.00	0+00.00	0.00	Lat D2H																					
0+17.72	0+00.00	17.72	3	0.83	0.83	0.50	0.42	0.42	10.00	100	9.80	4.1	0.0015	18	No	2.7	0.13	0.08	Inlet	1.25	10.13	0.10	452.48	452.18
0+00.00	0+00.00	0.00	Lat D2I																					
0+18.10	0+00.00	18.10	4	1.09	1.09	0.50	0.54	0.54	10.00	100	9.80	5.3	0.0026	18	No	3.0	0.10	0.14	Inlet	1.25	10.18	0.10	452.54	452.18
0+00.00	0+00.00	0.00	Lat D2J																					
0+42.92	0+28.92	34.00	7	1.80	1.80	0.50	0.90	0.90	10.00	100	9.80	8.8	0.0030	18	No	5.0	0.11	0.28	Inlet	1.25	10.11	0.40	450.66	450.18
0+28.92	0+00.00	28.92	D1F	1.32	1.32	0.50	0.66	1.56	10.12	100	9.78	15.2	0.0048	24	No	4.7	0.40	0.34	60° Wye	0.60	10.21	0.60	449.21	448.38
0+00.00	0+00.00	0.00	Lat D2K																					
0+17.72	0+00.00	17.72	3	0.83	0.83	0.50	0.42	0.42	10.00	100	9.80	4.1	0.0015	18	No	2.7	0.13	0.08	Inlet	1.25	10.13	0.10	452.48	452.18
0+00.00	0+00.00	0.00	Lat D2L																					
0+18.10	0+00.00	18.10	4	1.09	1.09	0.50	0.54	0.54	10.00	100	9.80	5.3	0.0026	18	No	3.0	0.10	0.14	Inlet	1.25	10.18	0.10	452.54	452.18
0+00.00	0+00.00	0.00	Lat D2M																					
0+42.92	0+28.92	34.00	7	1.80	1.80	0.50	0.90	0.90	10.00	100	9.80	8.8	0.0030	18	No	5.0	0.11	0.28	Inlet	1.25	10.11	0.40	450.66	450.18
0+28.92	0+00.00	28.92	D1F	1.32	1.32	0.50	0.66	1.56	10.12	100	9.78	15.2	0.0048	24	No	4.7	0.40	0.34	60° Wye	0.60	10.21	0.60	449.21	448.38
0+00.00	0+00.00	0.00	Lat D2N																					
0+17.72	0+00.00	17.72	3	0.83	0.83	0.50	0.42	0.42	10.00	100	9.80	4.1	0.0015	18	No	2.7	0.13	0.08	Inlet	1.25	10.13	0.10	452.48	452.18
0+00.00	0+00.00	0.00	Lat D2O																					
0+18.10	0+00.00	18.10	4	1.09	1.09	0.50	0.54	0.54	10.00	100	9.80	5.3	0.0026	18	No	3.0	0.10	0.14	Inlet	1.25	10.18	0.10	452.54	452.18
0+00.00	0+00.00	0.00	Lat D2P																					
0+42.92	0+28.92	34.00	7	1.80	1.80	0.50	0.90	0.90	10.00	100	9.80	8.8	0.0030	18	No	5.0	0.11	0.28	Inlet	1.25	10.11	0.40	450.66	450.18
0+28.92	0+00.00	28.92	D1F	1.32	1.32	0.50	0.66	1.56	10.12	100	9.78	15.2	0.0048	24	No	4.7	0.40	0.34	60° Wye	0.60	10.21	0.60	449.21	448.38
0+00.00	0+00.00	0.00	Lat D2Q																					
0+17.72	0+00.00	17.72	3	0.83	0.83	0.50	0.42	0.42	10.00	100	9.80	4.1	0.0015	18	No	2.7	0.13	0.08	Inlet	1.25	10.13	0.10	452.48	452.18
0+00.00	0+00.00	0.00	Lat D2R																					
0+18.10	0+00.00	18.10	4	1.09	1.09	0.50	0.54	0.54	10.00	100	9.80	5.3	0.0026	18	No	3.0	0.10	0.14	Inlet	1.25	10.18	0.10	452.54	452.18
0+00.00	0+00.00	0.00	Lat D2S																					
0+42.92	0+28.92	34.00	7	1.80																				

STORM SEWER CURVE DATA			
CURVE NO.	①	②	③
Δ	21° 21'41"	37° 35'42"	49° 59'41"
R	300.00'	250.00'	100.00'
T	56.58'	85.09'	46.63'
L	111.85'	164.04'	84.26'



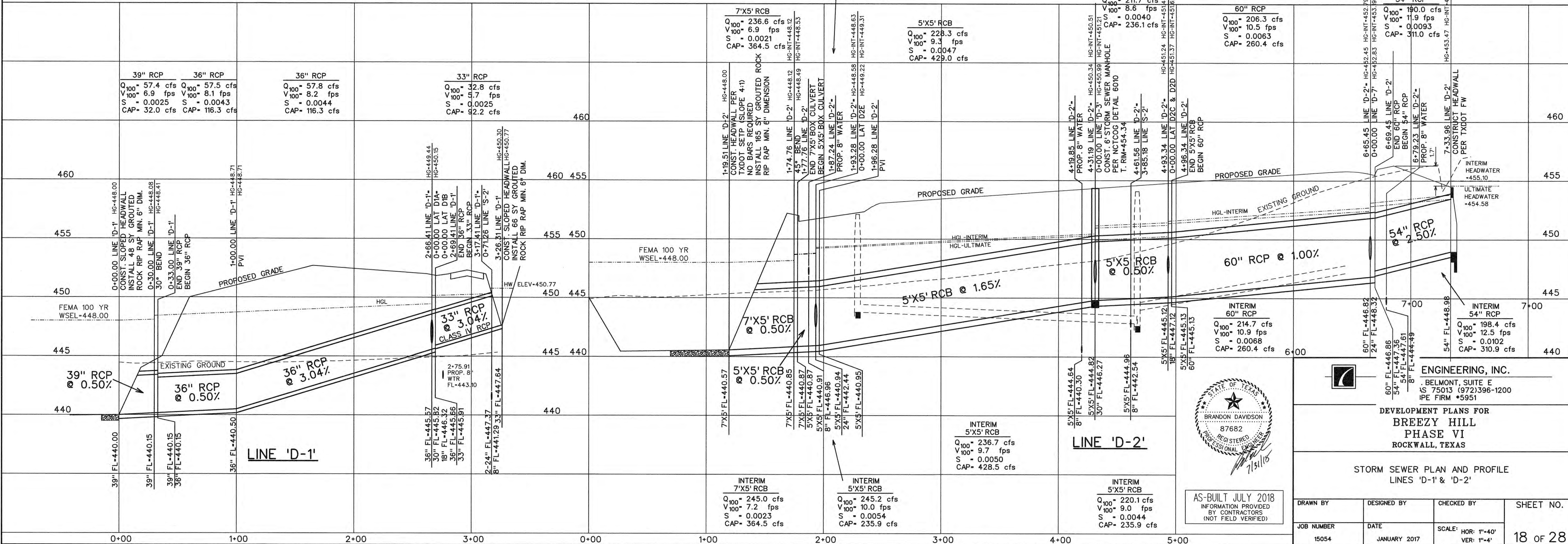
- LEGEND**
- ⓑ - BLOCK LABEL
 - Ⓢ - INLET NUMBER
 - ① - CURVE NUMBER
 - - SANITARY SEWER
 - ⊕ - WATER
 - ▬ - PROPOSED STORM SEWER
 - ▬ - EXISTING STORM SEWER



LINE 'D-1'

SECTION A-A
N.T.S.

LINE 'D-2'



LINE 'D-1'

LINE 'D-2'



ENGINEERING, INC.
 BELMONT, SUITE E
 75013 (972)396-1200
 IPE FIRM #5951

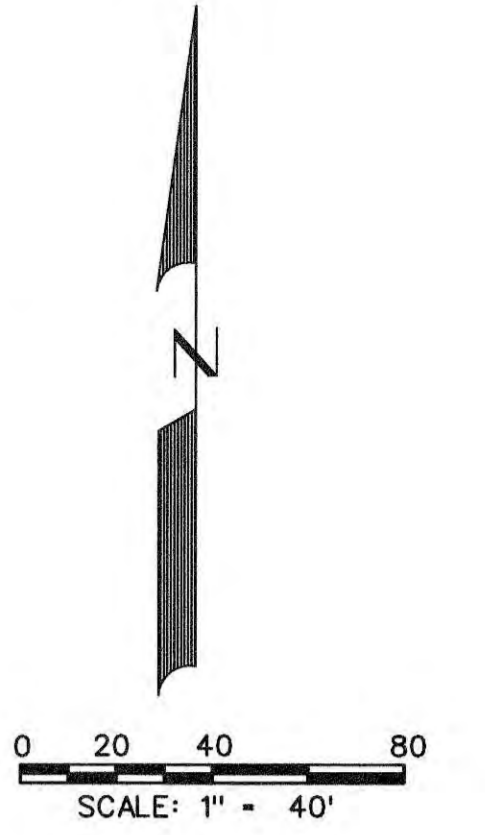
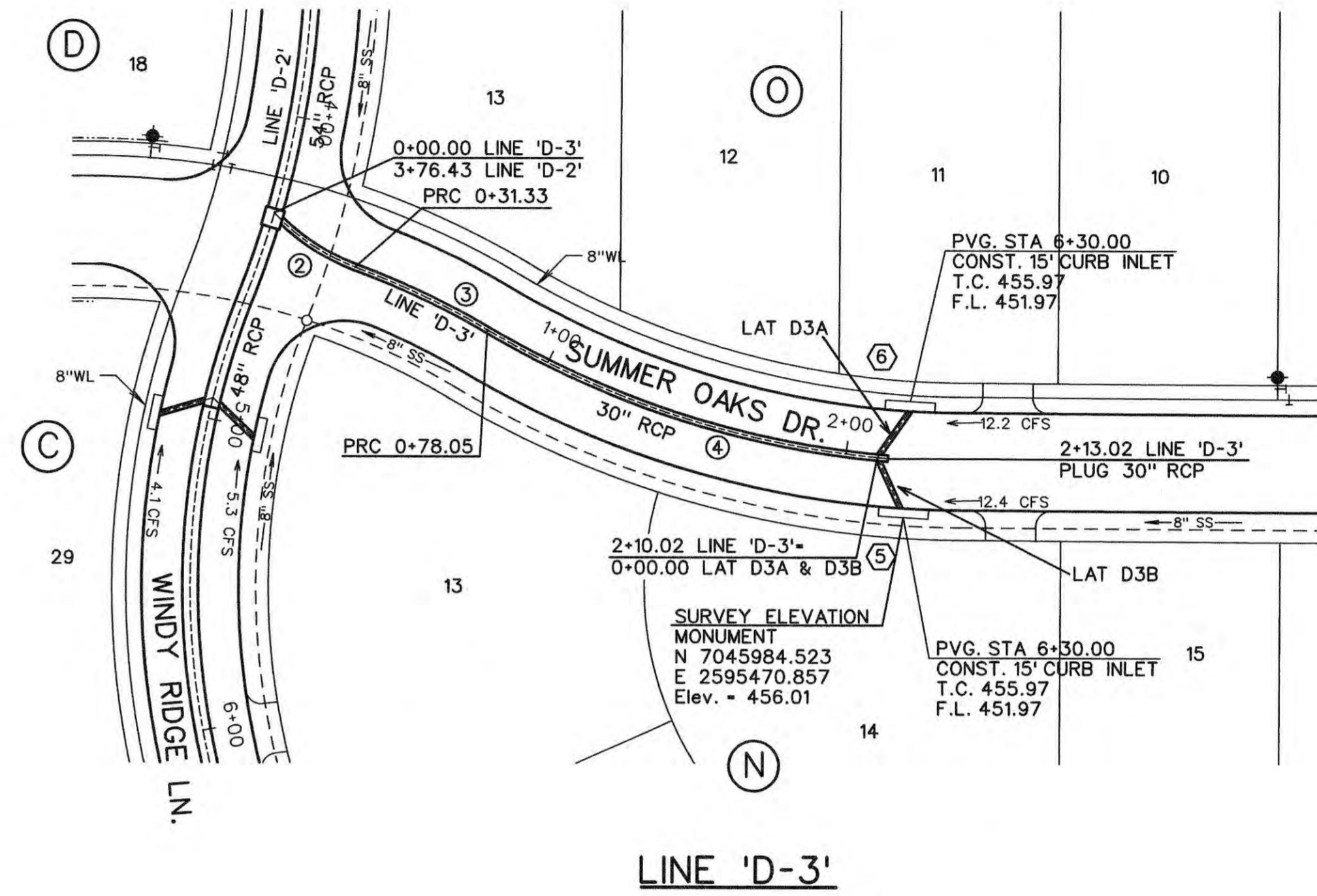
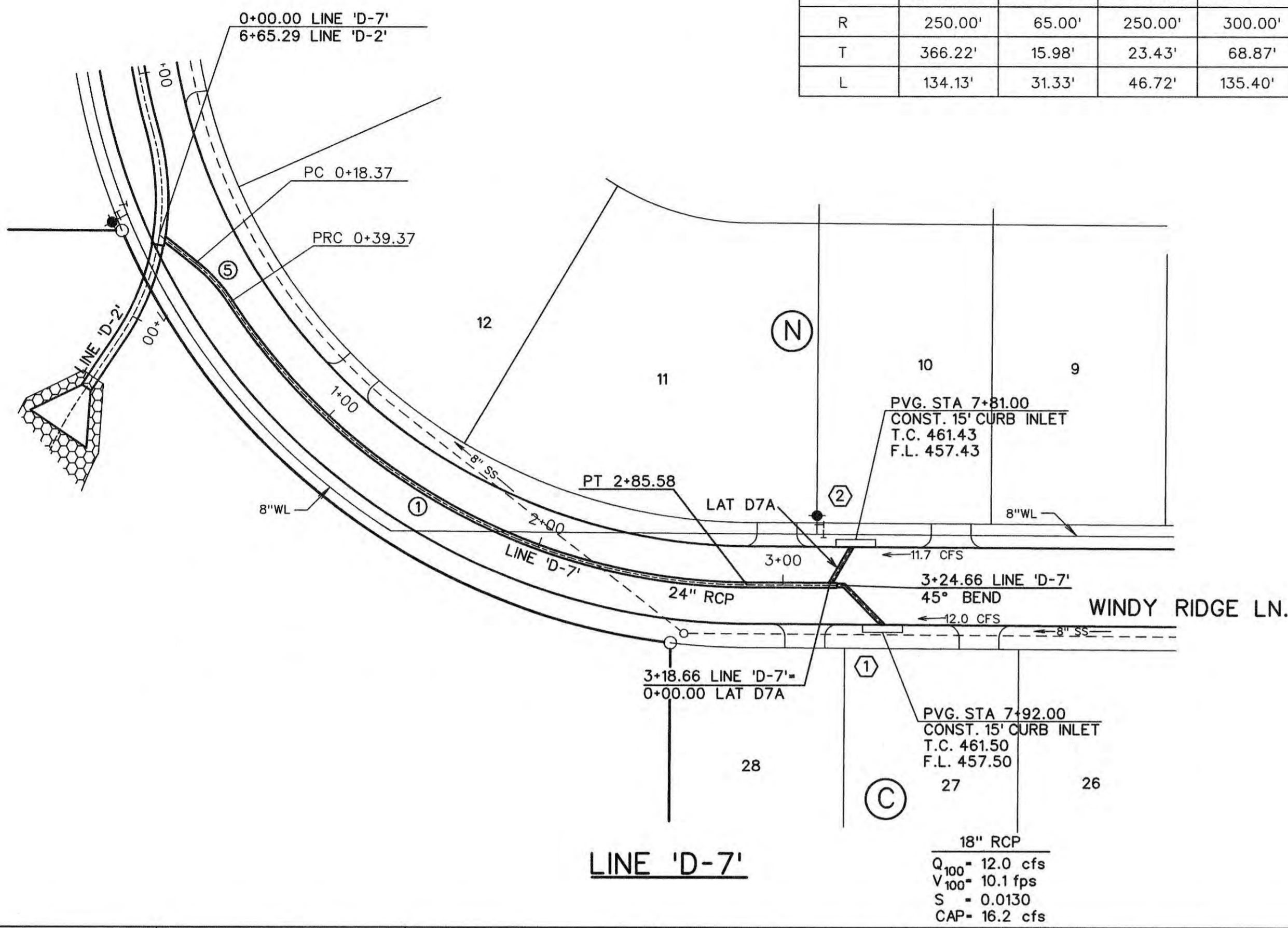
**DEVELOPMENT PLANS FOR
 BREEZY HILL
 PHASE VI
 ROCKWALL, TEXAS**

**STORM SEWER PLAN AND PROFILE
 LINES 'D-1' & 'D-2'**

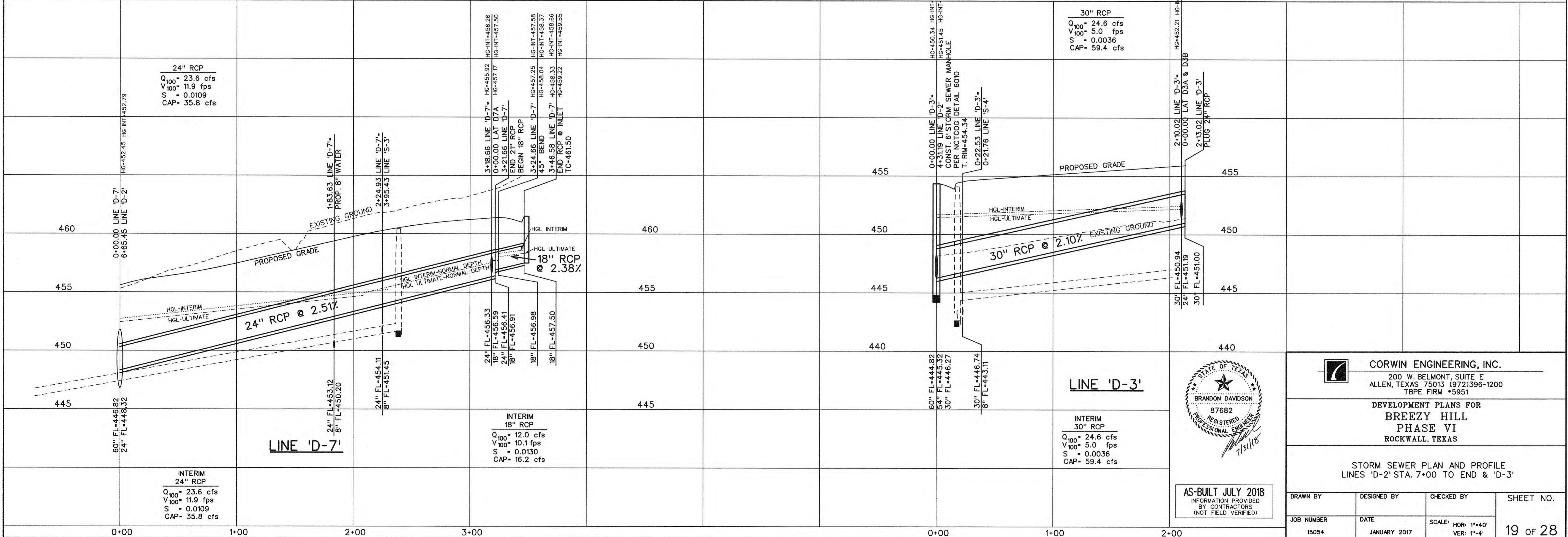
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
15054	JANUARY 2017		18 OF 28

SCALE: HOR: 1"=40'
 VER: 1"=4'

STORM SEWER CURVE DATA					
CURVE NO.	①	②	③	④	⑤
Δ	56° 25' 41"	27° 37' 08"	10° 42' 23"	25° 51' 31"	18° 30' 26"
R	250.00'	65.00'	250.00'	300.00'	65.00'
T	366.22'	15.98'	23.43'	68.87'	10.59'
L	134.13'	31.33'	46.72'	135.40'	21.00'



- LEGEND**
- (B) - BLOCK LABEL
 - (10) - INLET NUMBER
 - (1) - CURVE NUMBER
 - - SANITARY SEWER
 - +— - WATER
 - ==== - PROPOSED STORM SEWER
 - - EXISTING STORM SEWER



AS-BUILT JULY 2018
INFORMATION PROVIDED BY CONTRACTORS (NOT FIELD VERIFIED)

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

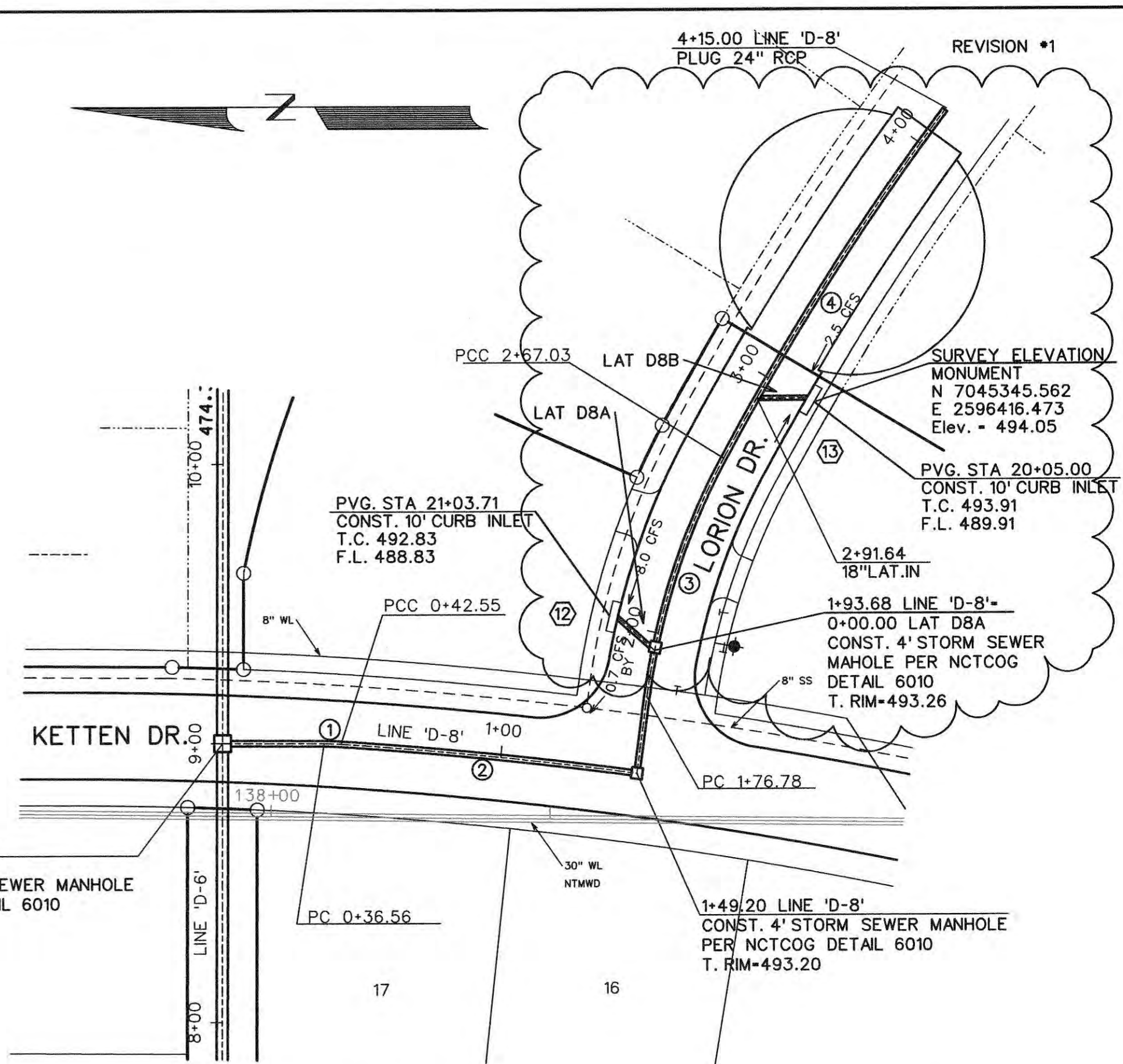
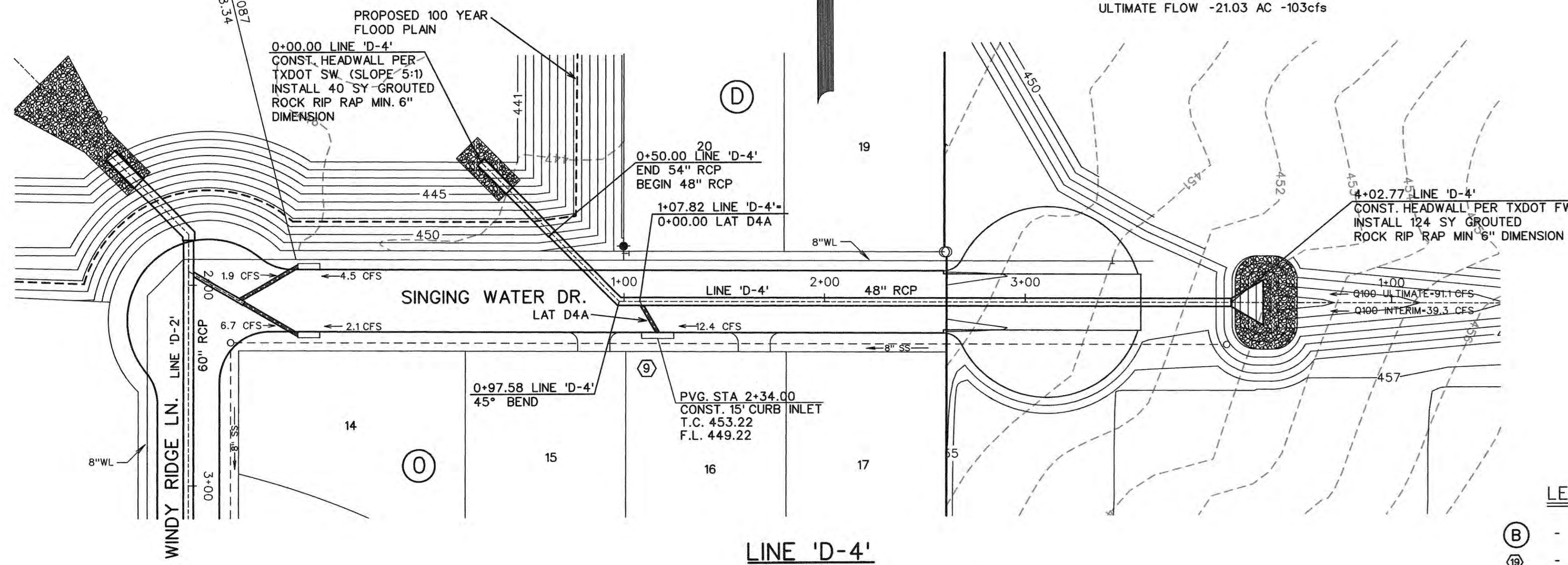
DEVELOPMENT PLANS FOR
BREZY HILL PHASE VI
ROCKWALL, TEXAS

STORM SEWER PLAN AND PROFILE
LINES 'D-2' STA. 7+00 TO END & 'D-3'

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	19 OF 28
15054	JANUARY 2017		

CURVE DATA				
CURVE NO.	①	②	③	④
Δ	03° 25' 51"	04° 00' 24"	20° 41' 02"	08° 33' 18"
R	100.00'	1525.00'	250.00'	991.00'
T	2.99'	53.34'	45.62'	74.12'
L	5.99'	106.65'	90.25'	147.97'

INTERIM FLOW -18.94 AC. -64cfs
 ULTIMATE FLOW -21.03 AC. -103cfs

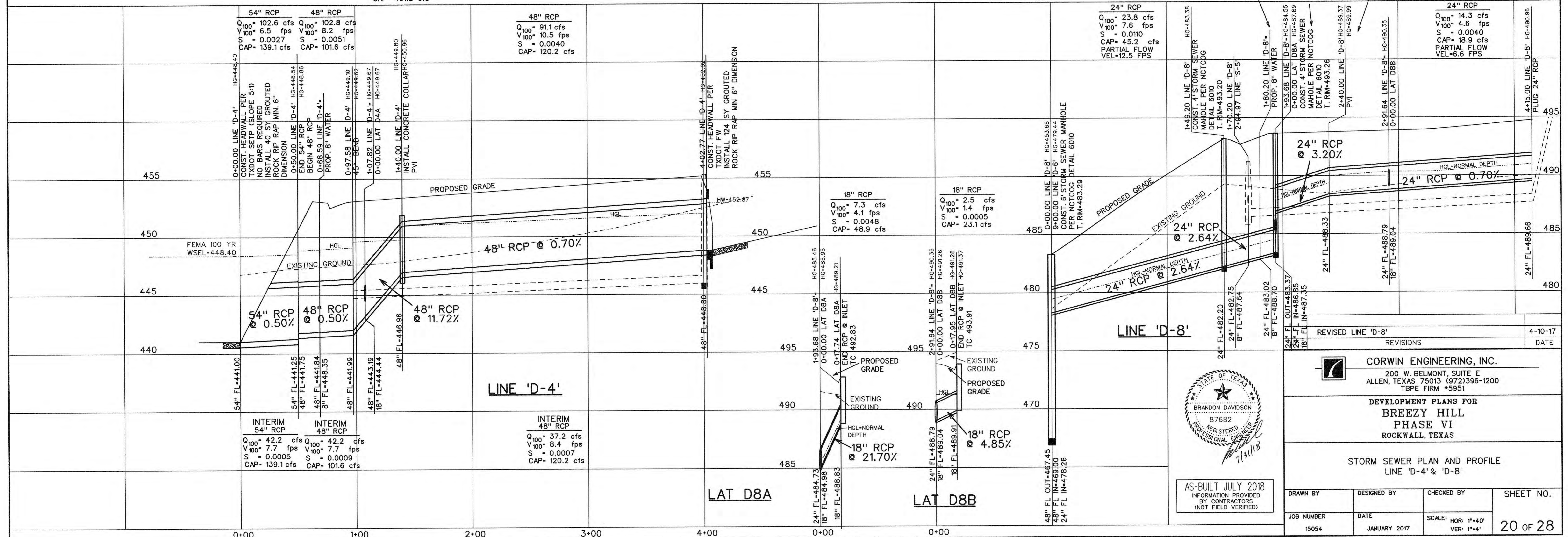


LEGEND

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

48" RCP
 Q₁₀₀ = 90.6 cfs
 V₁₀₀ = 7.2 fps
 S = 0.0039
 CAP = 491.8 cfs

24" RCP
 Q₁₀₀ = 23.8 cfs
 V₁₀₀ = 7.6 fps
 S = 0.0111
 CAP = 45.2 cfs
 PARTIAL FLOW
 VEL = 12.5 FPS



AS-BUILT JULY 2018
 INFORMATION PROVIDED
 BY CONTRACTORS
 (NOT FIELD VERIFIED)

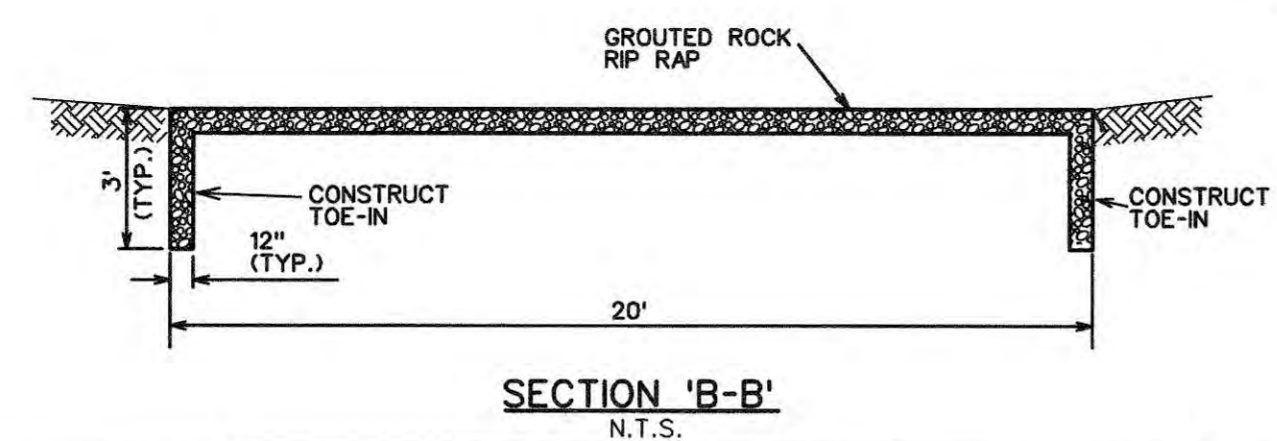
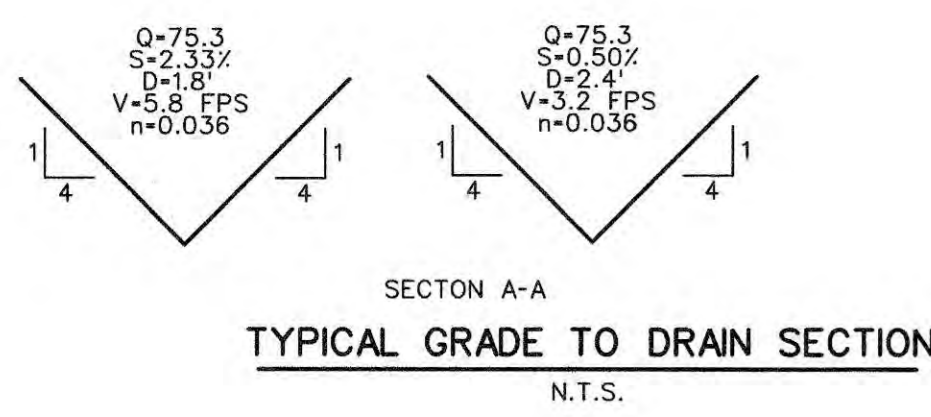
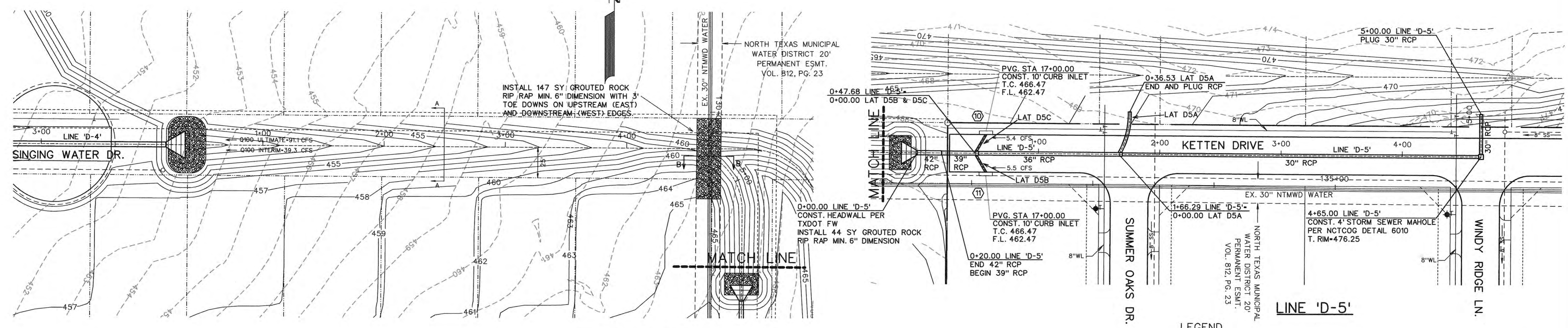
CORWIN ENGINEERING, INC.
 200 W. BELMONT, SUITE E
 ALLEN, TEXAS 75013 (972)396-1200
 TBPE FIRM #5951

DEVELOPMENT PLANS FOR
BREEZY HILL
 PHASE VI
 ROCKWALL, TEXAS

STORM SEWER PLAN AND PROFILE
 LINE 'D-4' & 'D-8'

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
15054	JANUARY 2017	SCALE: HOR: 1"=40' VER: 1"=4'	20 OF 28

NOTE:
 THE CONTRACTOR SHALL CONTACT NTMWD ENGINEERING AT (972) 442-5405 AT LEAST 48 HOURS PRIOR TO PERFORMING ANY WORK IN THE VICINITY OF THE NTMWD FACILITIES.



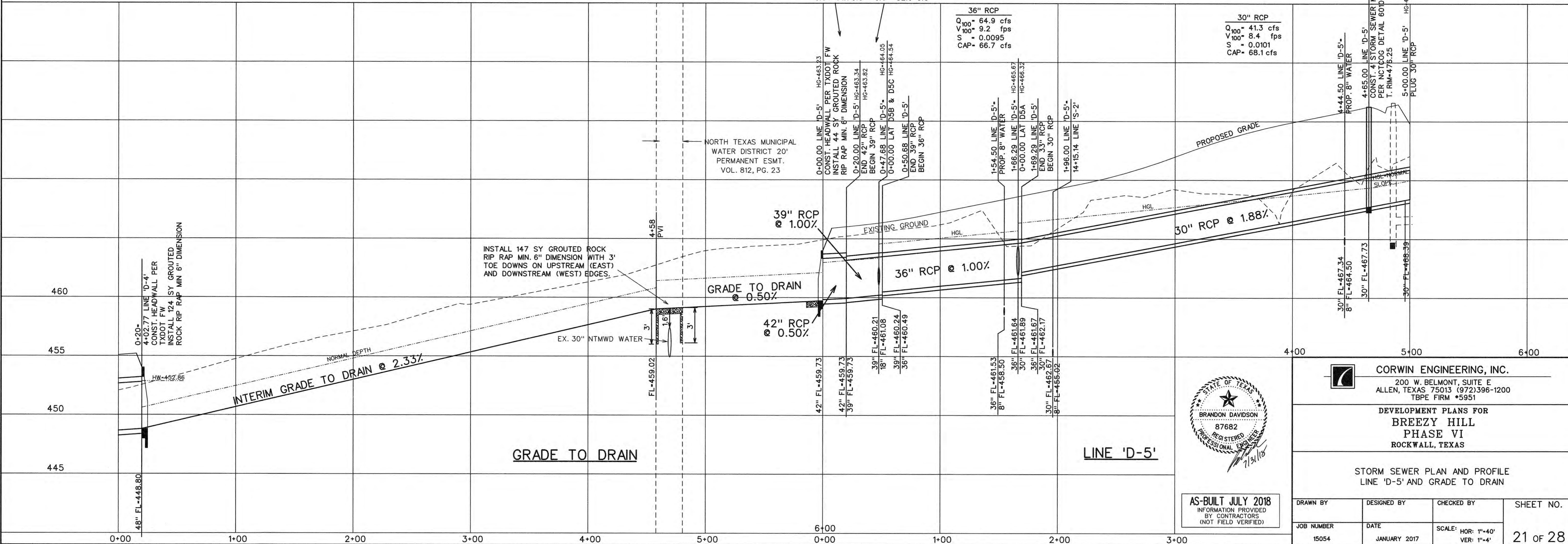
INTERIM GRADE TO DRAIN

42" RCP	39" RCP
Q ₁₀₀ = 75.3 cfs	Q ₁₀₀ = 75.4 cfs
V ₁₀₀ = 7.8 fps	V ₁₀₀ = 9.1 fps
S = 0.0056	S = 0.0083
CAP = 71.1 cfs	CAP = 82.6 cfs

36" RCP
Q ₁₀₀ = 64.9 cfs
V ₁₀₀ = 9.2 fps
S = 0.0095
CAP = 66.7 cfs

30" RCP
Q ₁₀₀ = 41.3 cfs
V ₁₀₀ = 12.5 fps
S = 0.0101
CAP = 68.1 cfs

- LEGEND
- (B) - BLOCK LABEL
 - (IN) - INLET NUMBER
 - (C) - CURVE NUMBER
 - (S) - SANITARY SEWER
 - (W) - WATER
 - (SS) - PROPOSED STORM SEWER
 - (SS) - EXISTING STORM SEWER



AS-BUILT JULY 2018
 INFORMATION PROVIDED BY CONTRACTORS (NOT FIELD VERIFIED)

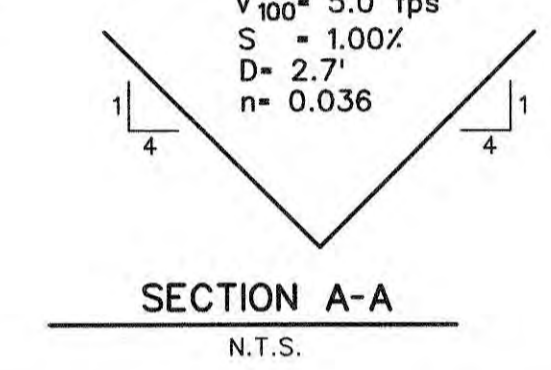
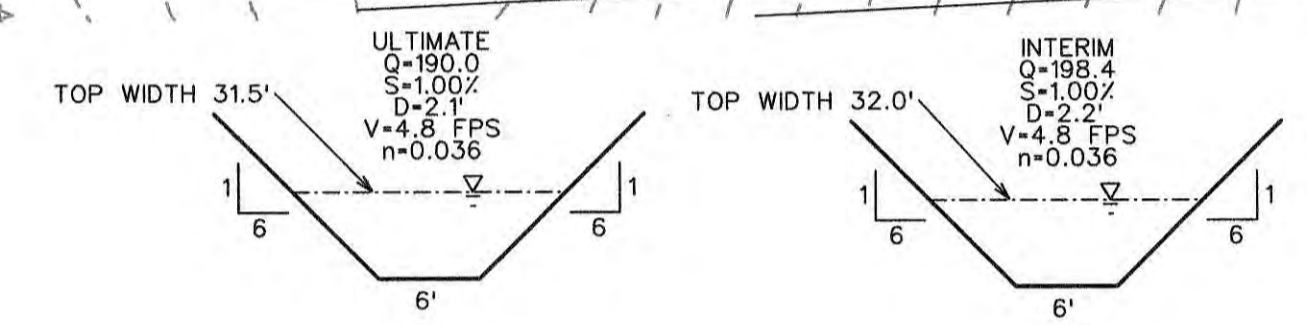
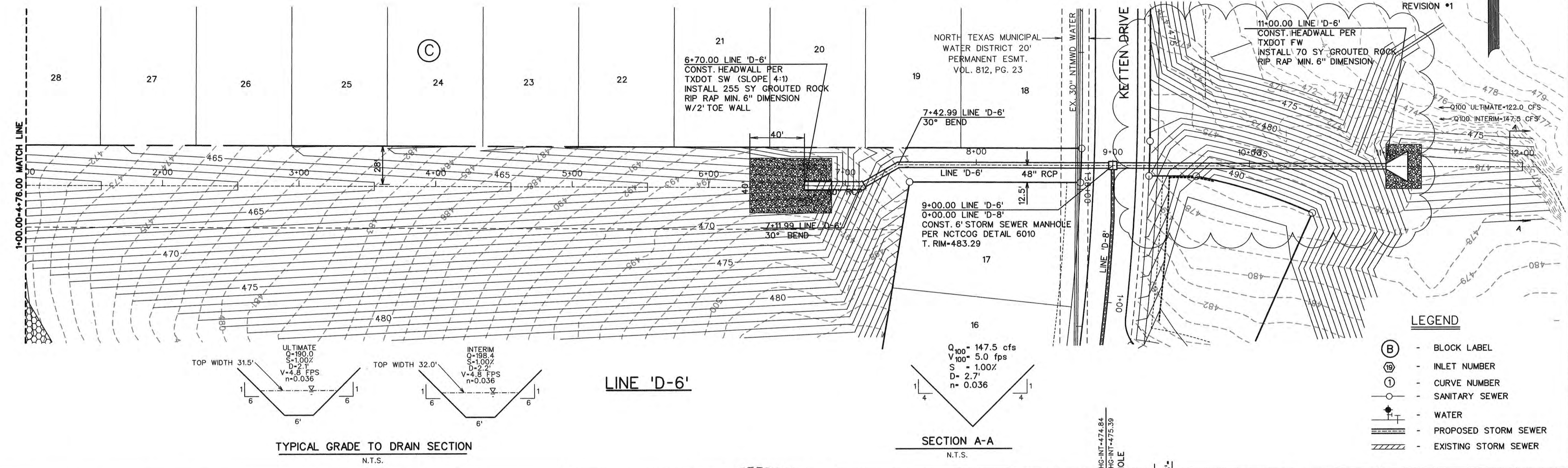
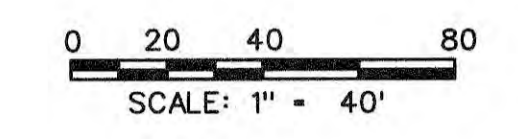
CORWIN ENGINEERING, INC.
 200 W. BELMONT, SUITE E
 ALLEN, TEXAS 75013 (972)396-1200
 TBPE FIRM #5951

DEVELOPMENT PLANS FOR
**BREEZY HILL
 PHASE VI**
 ROCKWALL, TEXAS

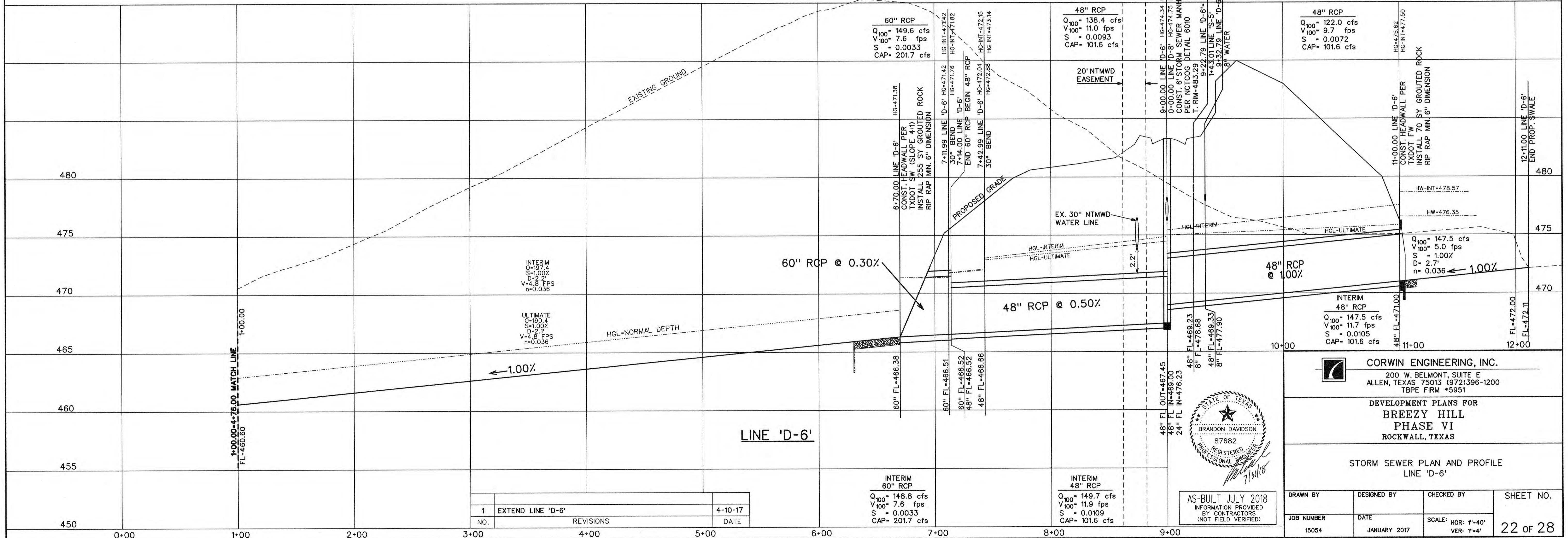
STORM SEWER PLAN AND PROFILE
 LINE 'D-5' AND GRADE TO DRAIN

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	21 OF 28
15054	JANUARY 2017		

NOTE:
 THE CONTRACTOR SHALL CONTACT NTMWD ENGINEERING AT (972) 442-5405 AT LEAST 48 HOURS PRIOR TO PERFORMING ANY WORK IN THE VICINITY OF THE NTMWD FACILITIES.



- LEGEND**
- (B) - BLOCK LABEL
 - (IN) - INLET NUMBER
 - (C) - CURVE NUMBER
 - - SANITARY SEWER
 - +— - WATER
 - +— - PROPOSED STORM SEWER
 - +— - EXISTING STORM SEWER



CORWIN ENGINEERING, INC.
 200 W. BELMONT, SUITE E
 ALLEN, TEXAS 75013 (972) 396-1200
 TBE FIRM #5351

**DEVELOPMENT PLANS FOR
 BREEZY HILL
 PHASE VI
 ROCKWALL, TEXAS**

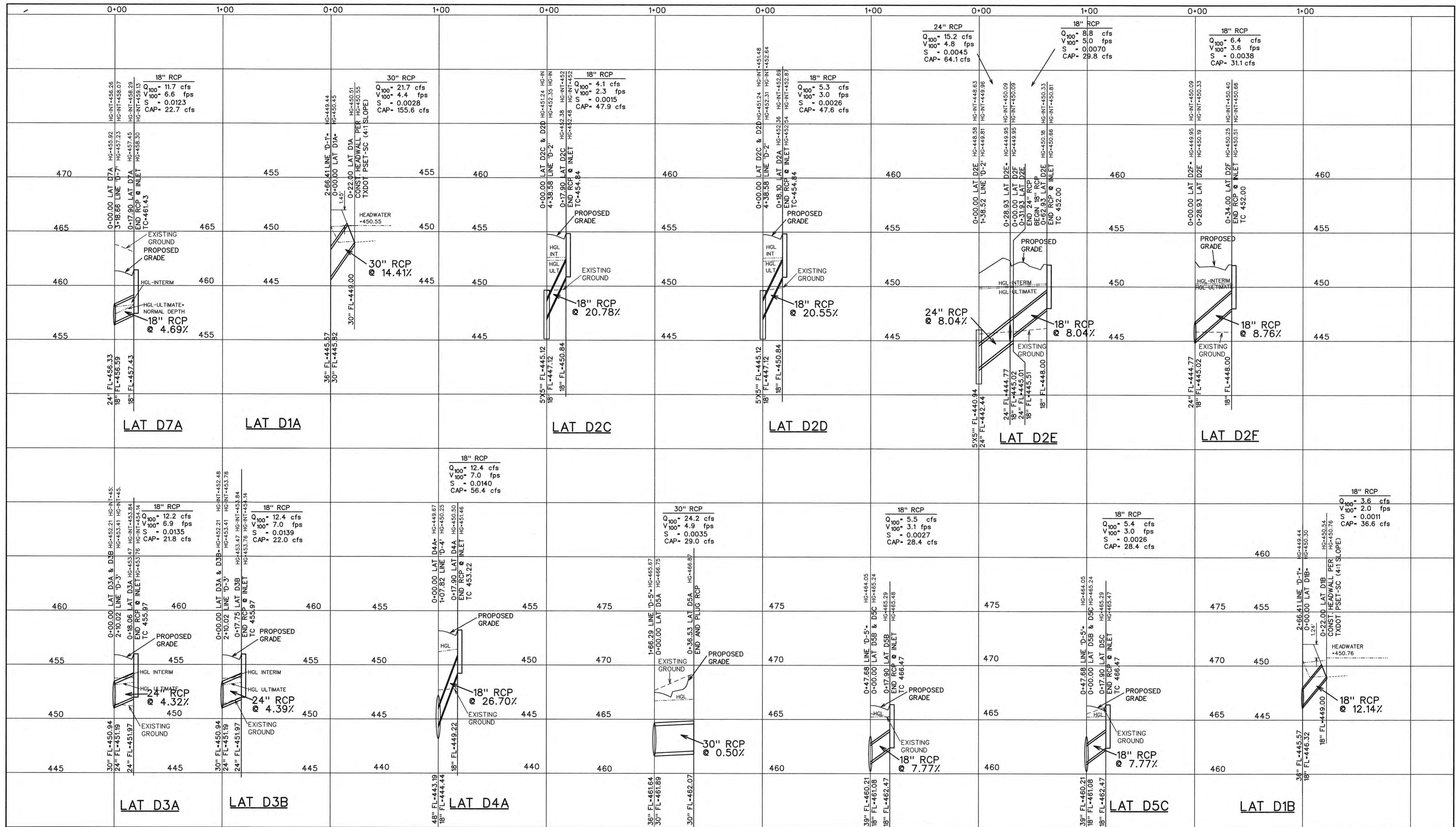
**STORM SEWER PLAN AND PROFILE
 LINE 'D-6'**

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
15054	JANUARY 2017	SCALE: HOR: 1"=40' VER: 1"=4'	22 OF 28

NO.	REVISIONS	DATE
1	EXTEND LINE 'D-6'	4-10-17



AS-BUILT JULY 2018
 INFORMATION PROVIDED
 BY CONTRACTORS
 (NOT FIELD VERIFIED)



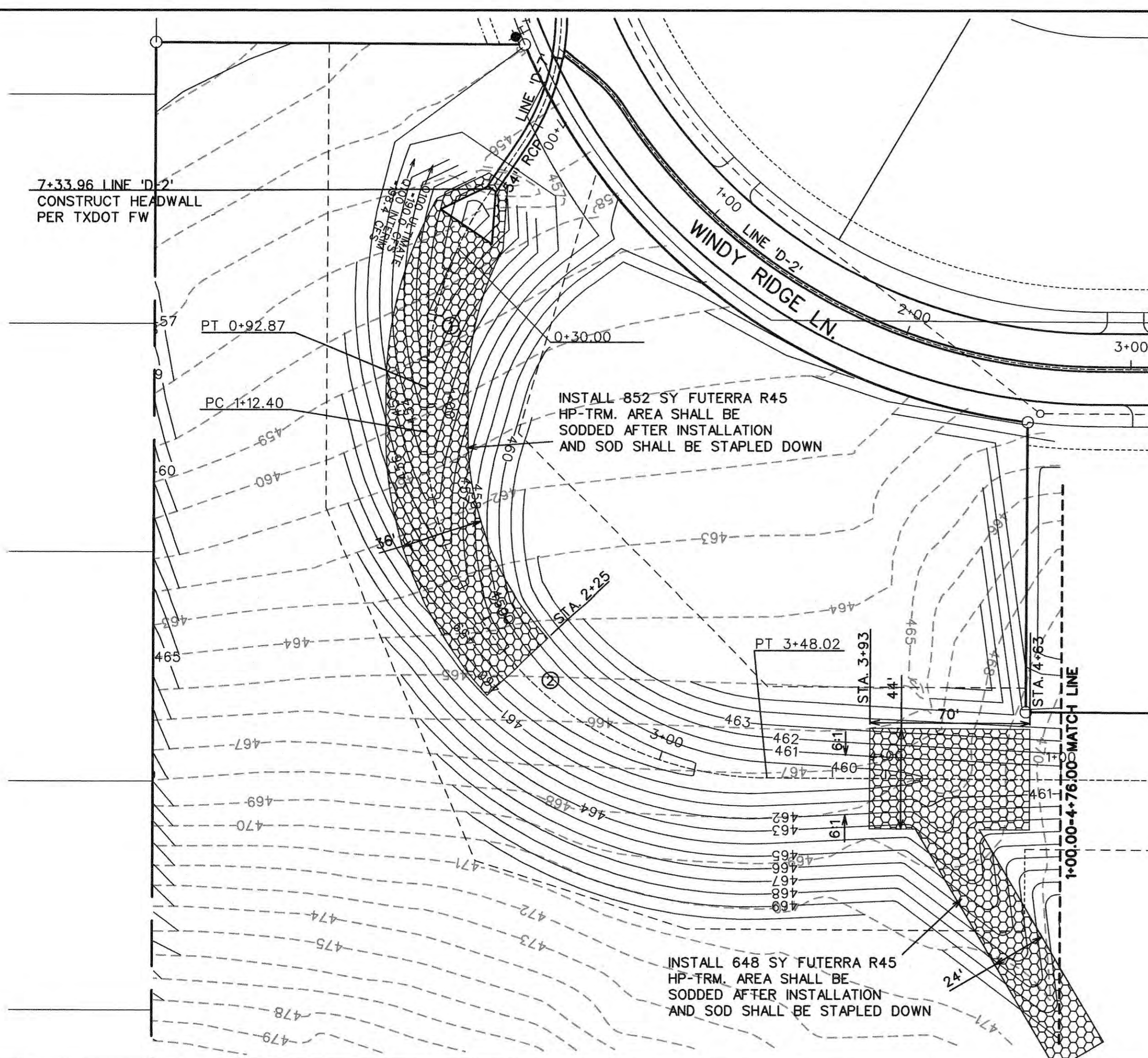
AS-BUILT JULY 2018
INFORMATION PROVIDED
BY CONTRACTORS
(NOT FIELD VERIFIED)

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

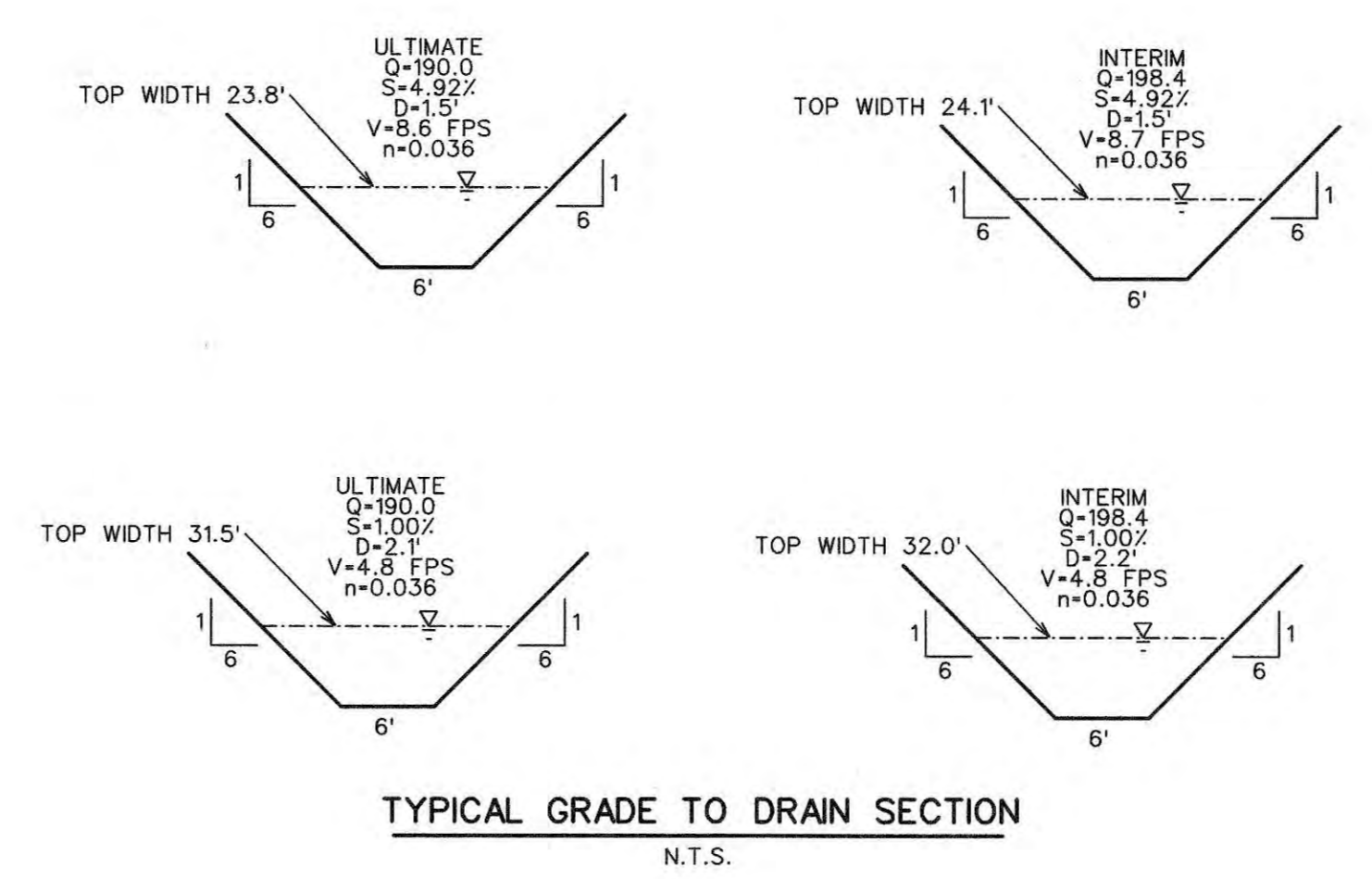
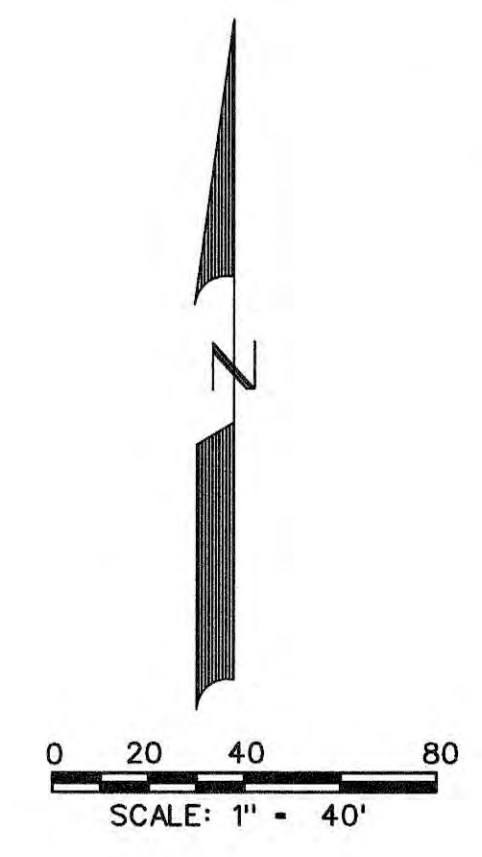
DEVELOPMENT PLANS FOR
**BREEZY HILL
PHASE VI**
ROCKWALL, TEXAS

STORM SEWER LATERAL PROFILES

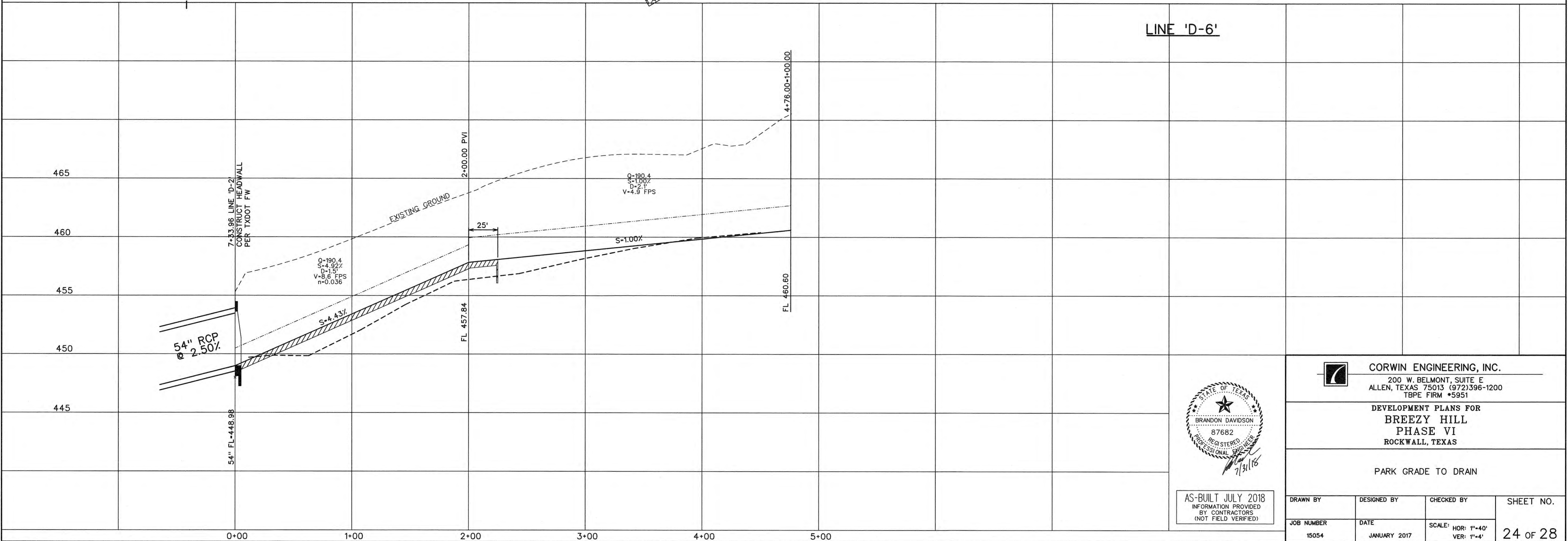
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	23 OF 28
15054	JANUARY 2017		



CURVE DATA			
CURVE NO.	①	②	③
Δ	03° 25' 51"	90° 00' 00"	" " "
R	150.00'	150.00'	'
T	31.90'	150.00'	'
L	62.87'	235.62'	'



- LEGEND**
- ⓑ - BLOCK LABEL
 - Ⓢ - INLET NUMBER
 - ① - CURVE NUMBER
 - - SANITARY SEWER
 - +— - WATER
 - ==== - PROPOSED STORM SEWER
 - ==== - EXISTING STORM SEWER



AS-BUILT JULY 2018
INFORMATION PROVIDED
BY CONTRACTORS
(NOT FIELD VERIFIED)

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

DEVELOPMENT PLANS FOR
**BREEZY HILL
PHASE VI**
ROCKWALL, TEXAS

PARK GRADE TO DRAIN

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	24 of 28
15054	JANUARY 2017		



NOTE:
RETAINING WALLS 3' IN HEIGHT AND OVER
NEED AN ENGINEERED SEALED PLAN.
(PLANS TO BE SUBMITTED PRIOR
TO ENGINEERING APPROVAL)

Note:
Each lot will need a detailed grading plan
with building permit submittal. This is a
general grading plan for site work only.

DRIVEWAY LOCATION SO MAXIMUM 10%
SLOPE OR UNDER IS MAINTAINED, OR AS TO
AVOID INLET OR MIN. DISTANCE FROM INTER-
SECTION.
(DRIVEWAY MAY BE PLACED AT ALTERNATE
LOCATION WITH USE OF A DROP GARAGE AS
LONG AS MAXIMUM SLOPE IS 10% OR UNDER)

LEGEND

- SPOT ELEVATION 706.2
- EXIST. CONTOUR -700-
- PROP. CONTOUR -704-
- RETAINING WALL - - - - -

NOTES:

1. Finish Floor Elevation to be 0.70 Feet above Finished Pad.(FP)
2. Additional Erosion Control to be installed in Parkways as determined by the City Inspector.
3. Finished Pad Elevations are within ± 0.3 Feet.
4. All fill compacted to min 95% std. density using sheeps foot roller.
5. All portions of the wall to be on one lot. Do not install on property line or in easements or right of way.
6. ALL R.O.W. to be 1/4" per foot.

SCALE: 1" = 50'



AS-BUILT JULY 2018
INFORMATION PROVIDED
BY CONTRACTORS
(NOT FIELD VERIFIED)

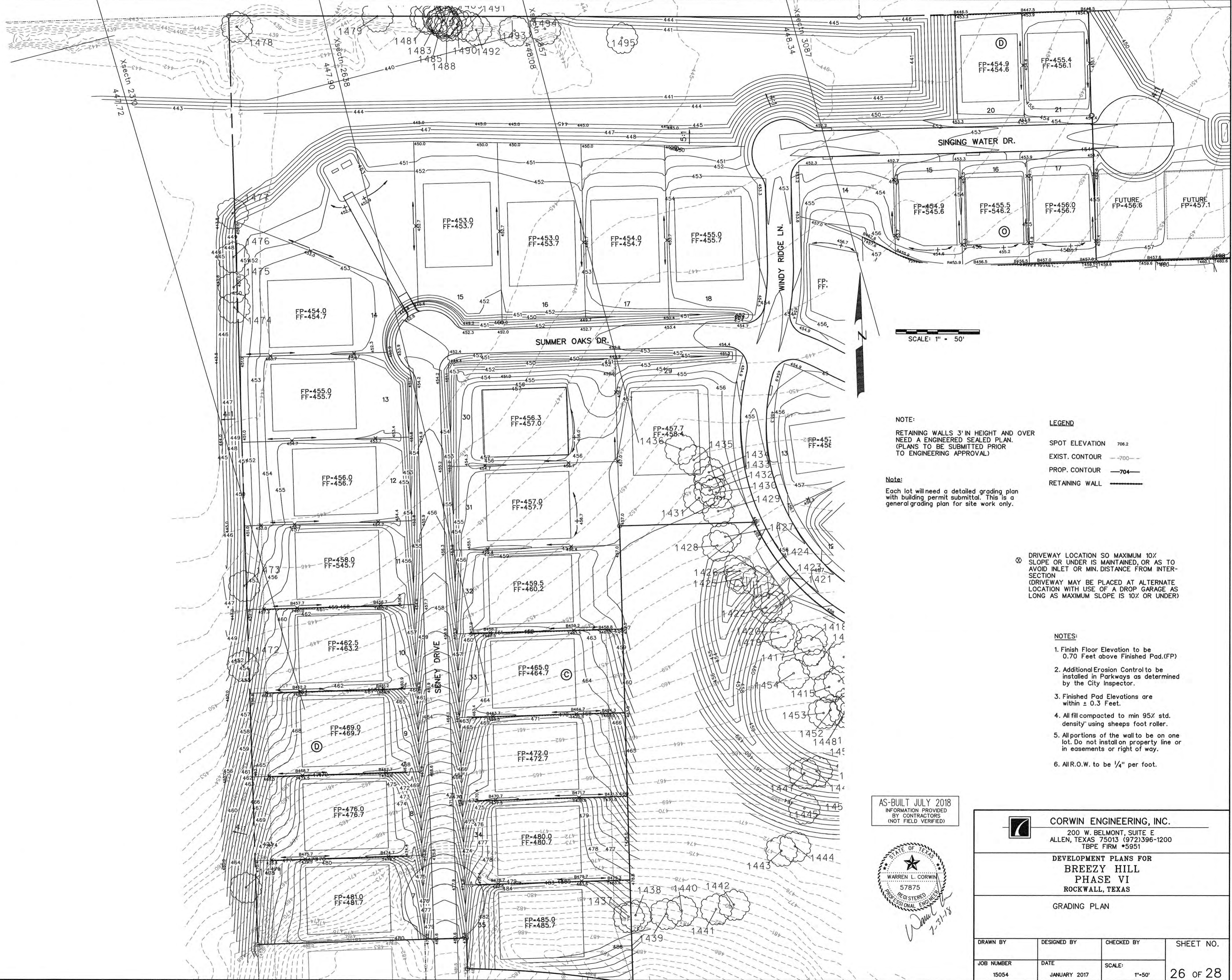
CORWIN ENGINEERING, INC.
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200
TBPE FIRM #5951

DEVELOPMENT PLANS FOR
**BREZY HILL
PHASE VI**
ROCKWALL, TEXAS

GRADING PLAN

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE:	25 OF 28
15054	JANUARY 2017	1"=50'	

NOTE:
PARK VEGETATION TO BE RE-ESTABLISHED WITH
NATIVE GRASS APPROVED BY THE PARKS DEPT.



SCALE: 1" = 50'

NOTE:
RETAINING WALLS 3' IN HEIGHT AND OVER
NEED AN ENGINEERED SEALED PLAN.
(PLANS TO BE SUBMITTED PRIOR
TO ENGINEERING APPROVAL)

Note:
Each lot will need a detailed grading plan
with building permit submittal. This is a
general grading plan for site work only.

LEGEND
SPOT ELEVATION 706.2
EXIST. CONTOUR -700-
PROP. CONTOUR -704-
RETAINING WALL

⊗ DRIVEWAY LOCATION SO MAXIMUM 10%
SLOPE OR UNDER IS MAINTAINED, OR AS TO
AVOID INLET OR MIN. DISTANCE FROM INTER-
SECTION
(DRIVEWAY MAY BE PLACED AT ALTERNATE
LOCATION WITH USE OF A DROP GARAGE AS
LONG AS MAXIMUM SLOPE IS 10% OR UNDER)

- NOTES:
1. Finish Floor Elevation to be 0.70 Feet above Finished Pad.(FP)
 2. Additional Erosion Control to be installed in Parkways as determined by the City Inspector.
 3. Finished Pad Elevations are within ± 0.3 Feet.
 4. All fill compacted to min 95% std. density using sheeps foot roller.
 5. All portions of the wall to be on one lot. Do not install on property line or in easements or right of way.
 6. ALL R.O.W. to be 1/4" per foot.

AS-BUILT JULY 2018
INFORMATION PROVIDED
BY CONTRACTORS
(NOT FIELD VERIFIED)



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

DEVELOPMENT PLANS FOR
**BREEZY HILL
PHASE VI**
ROCKWALL, TEXAS

GRADING PLAN

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE:	26 OF 28
15054	JANUARY 2017	1"=50'	

NOTE:
 RETAINING WALLS 3' IN HEIGHT AND OVER
 NEED AN ENGINEER SEALED PLAN.
 (PLANS TO BE SUBMITTED PRIOR
 TO ENGINEERING APPROVAL.)

Note:
 Each lot will need a detailed grading plan
 with building permit submittal. This is a
 general grading plan for site work only.

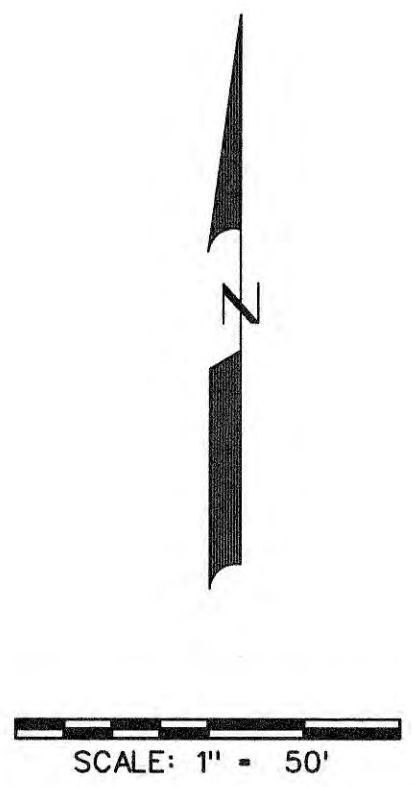
⊗ DRIVEWAY LOCATION SO MAXIMUM 10%
 SLOPE OR UNDER IS MAINTAINED, OR AS TO
 AVOID INLET OR MIN. DISTANCE FROM INTER-
 SECTION
 (DRIVEWAY MAY BE PLACED AT ALTERNATE
 LOCATION WITH USE OF A DROP GARAGE AS
 LONG AS MAXIMUM SLOPE IS 10% OR UNDER)

LEGEND

- SPOT ELEVATION 706.2
- EXIST. CONTOUR -700-
- PROP. CONTOUR -704-
- RETAINING WALL ————

NOTES:

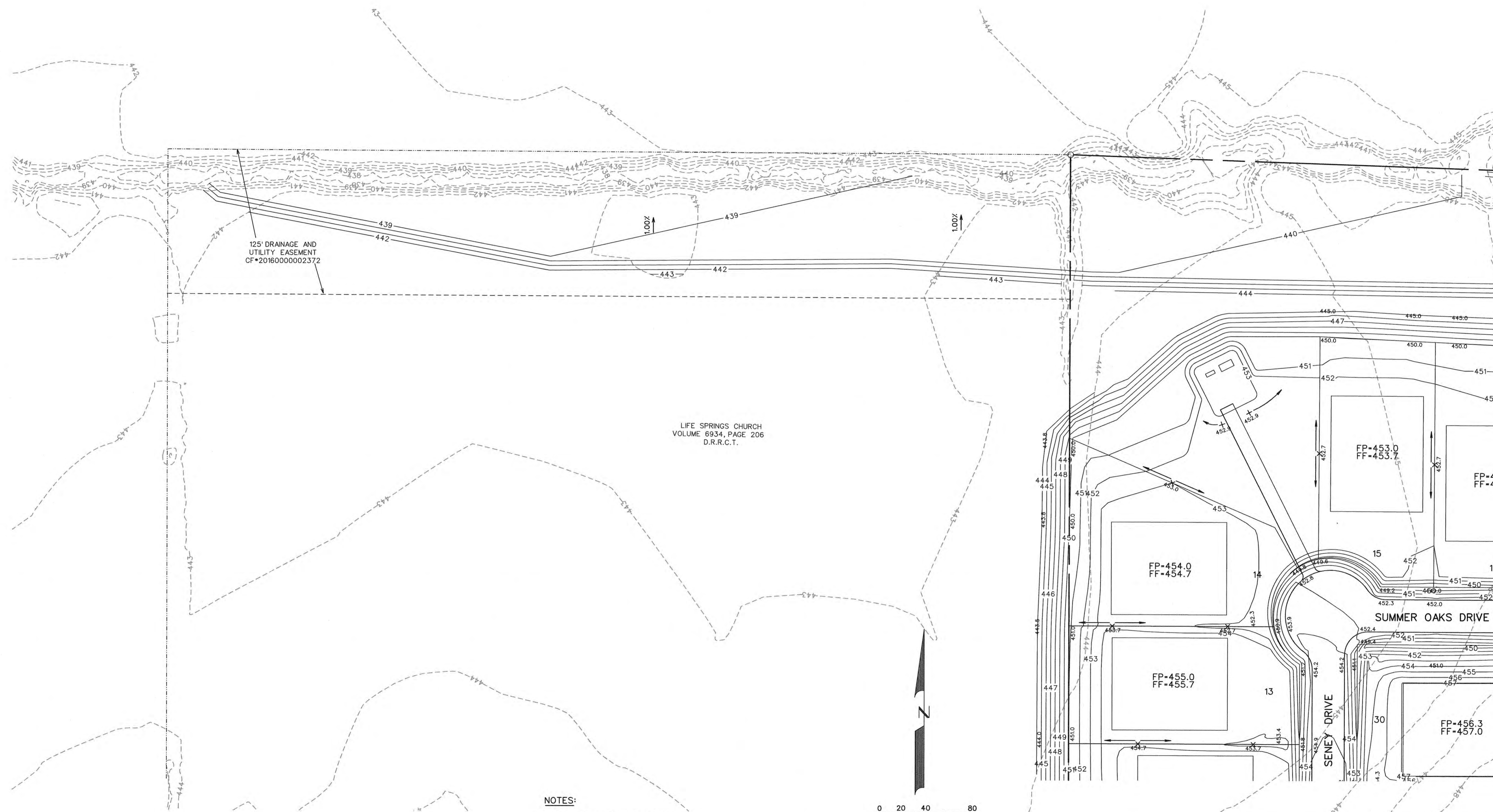
1. Finish Floor Elevation to be
 0.70 Feet above Finished Pad.(FP)
2. Additional Erosion Control to be
 installed in Parkways as determined
 by the City Inspector.
3. Finished Pad Elevations are
 within ± 0.3 Feet.
4. All fill compacted to min 95% std.
 density using sheeps foot roller.
5. All portions of the wall to be on one
 lot. Do not install on property line or
 in easements or right of way.
6. All R.O.W. to be 1/4" per foot.



AS-BUILT JULY 2018
 INFORMATION PROVIDED
 BY CONTRACTORS
 (NOT FIELD VERIFIED)



CORWIN ENGINEERING, INC. 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972)396-1200 TBPE FIRM #5951			
DEVELOPMENT PLANS FOR BREEZY HILL PHASE VI ROCKWALL, TEXAS			
GRADING PLAN			
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 15054	DATE JANUARY 2017	SCALE: 1"=50'	26B of 28

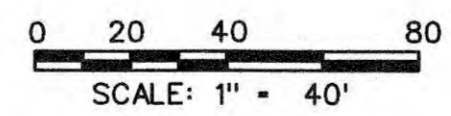


125' DRAINAGE AND UTILITY EASEMENT
CF*2016000002372

LIFE SPRINGS CHURCH
VOLUME 6934, PAGE 206
D.R.R.C.T.

NOTES:

1. Finish Floor Elevation to be 0.70 Feet above Finished Pad.(FP)
2. Additional Erosion Control to be installed in Parkways as determined by the City Inspector.
3. Finished Pad Elevations are within ± 0.3 Feet.
4. All fill compacted to min 95% std. density using sheeps foot roller.
5. All portions of the wall to be on one lot. Do not install on property line or in easements or right of way.
6. All R.O.W. to be 1/4" per foot.



LEGEND

- SPOT ELEVATION 706.2
- EXIST. CONTOUR ---700---
- PROP. CONTOUR ---704---
- RETAINING WALL —————



AS-BUILT JULY 2018
INFORMATION PROVIDED
BY CONTRACTORS
(NOT FIELD VERIFIED)

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

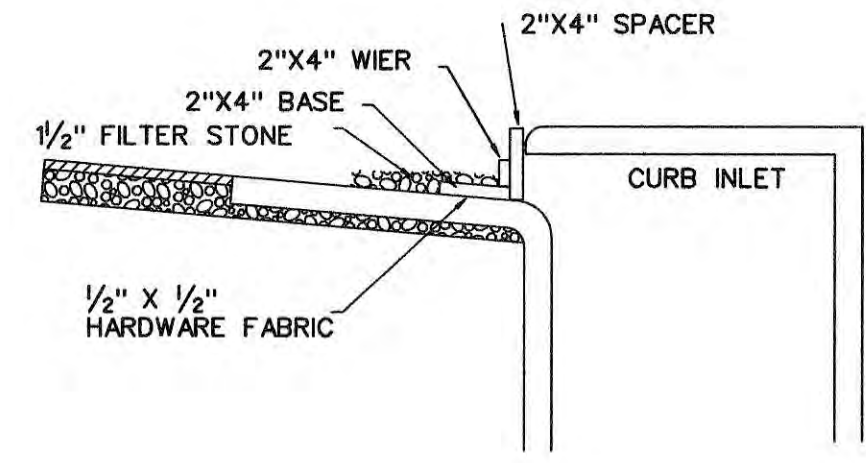
DEVELOPMENT PLANS FOR
**BREEZY HILL
PHASE VI**
ROCKWALL, TEXAS

GRADING PLAN

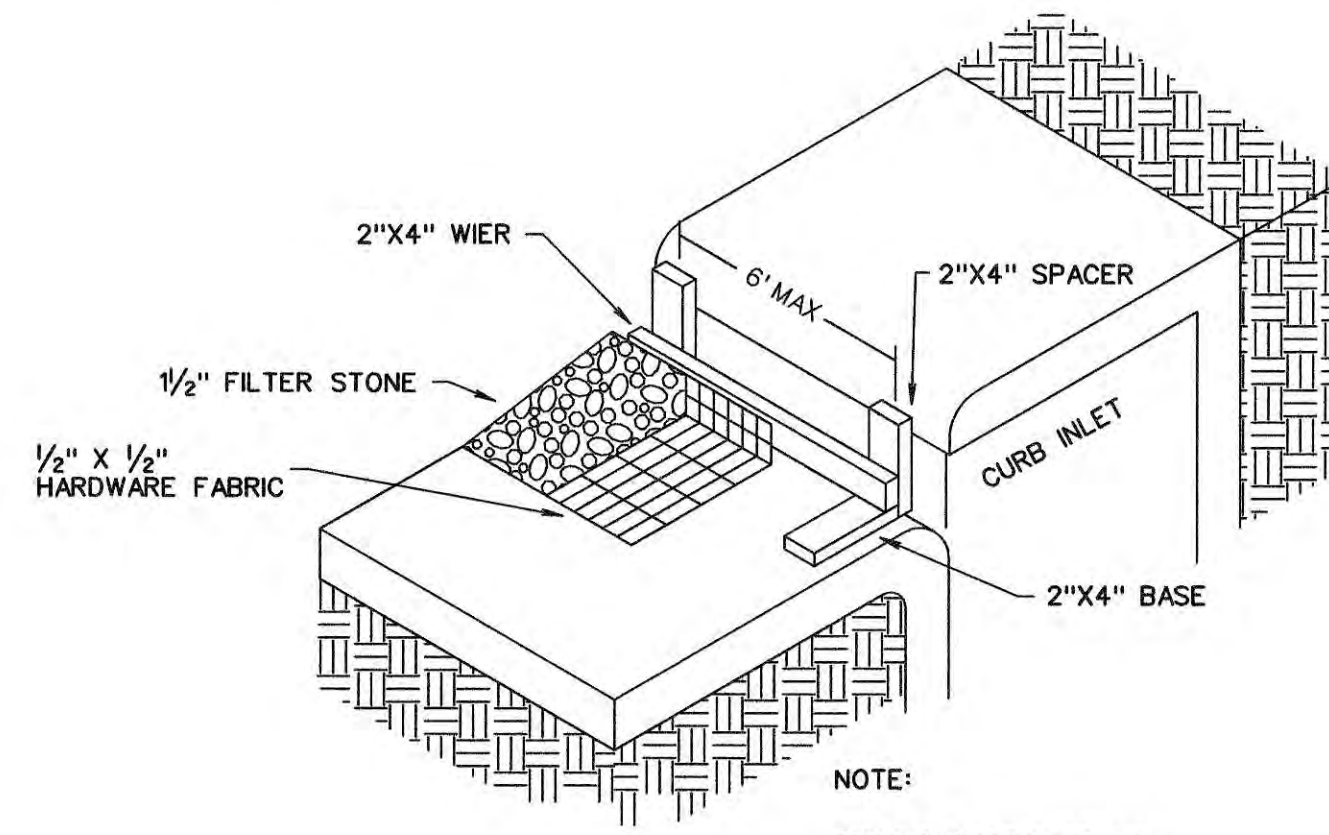
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 15054	DATE JANUARY 2017	SCALE: HOR: 1"=40' VER: 1"=4'	26C of 28

CONSTRUCTION SEQUENCE

1. GRADING CONTRACTOR TO INSTALL TEMPORARY STABILIZED ENTRANCE.
2. INSTALL SILT FENCE AS SHOWN, (TS-600 POLY FELT) PER C.O.G. SPECIFICATIONS.
3. CONSTRUCT SEDIMENT BASIN
4. PERFORM GRADING AND UTILITY CONSTRUCTION.
5. AFTER THE INLET BOTTOMS ARE CONSTRUCTED, THE INLETS SHALL BE FILLED WITH STONE AND COVERED WITH A FILTER FABRIC (TS-600 POLY FELT OR EQUIVALENT) BY UTILITY CONTRACTOR.
6. PRIOR TO CITY RELEASING PAVING, SOD OR SEEDED CURLEX SHALL BE INSTALLED ON SIDES AND BOTTOM OF ALL DETENTION PONDS AND ALL DETENTION PONDS MUST BE FUNCTIONING.
7. AFTER PAVING AND COMPLETION OF INLETS, INLET FILTERS SHALL BE INSTALLED IN ALL INLETS AND MAINTAINED UNTIL RE-VEGETATION HAS BEEN COMPLETED BY PAVING CONTRACTOR.
8. SILT FENCE SHALL REMAIN IN PLACE UNTIL RE-VEGETATION HAS BEEN COMPLETED.
9. PAVING CONTRACTOR SHALL REMOVE TEMPORARY STABILIZED ENTRANCE.
10. PRIOR TO CITY ACCEPTANCE THE PAVING CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY MUD OR SILT WHICH COLLECTS ON THE EXISTING AND NEW PAVEMENT AND INSTALLING SILT FENCE AT BACK OF CURB THROUGHOUT THE ENTIRE SITE.
11. 75%-80% OF ALL DISTURBED AREA TO HAVE A MINIMUM 1" STAND OF GRASS PRIOR TO ENGINEERING ACCEPTANCE.
12. AT TIME OF ACCEPTANCE, ALL INLET PROTECTION IS TO BE REMOVED

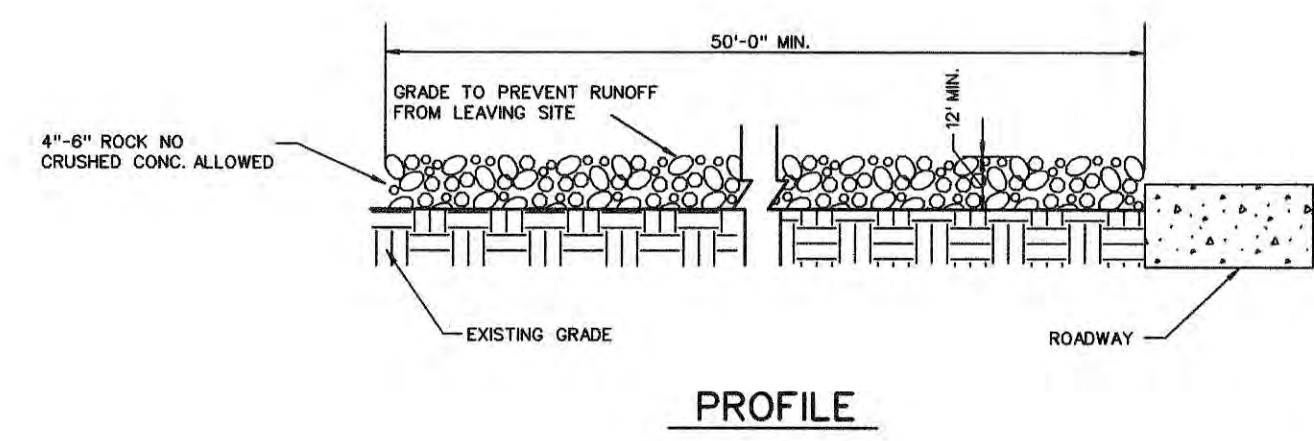


INLET SECTION

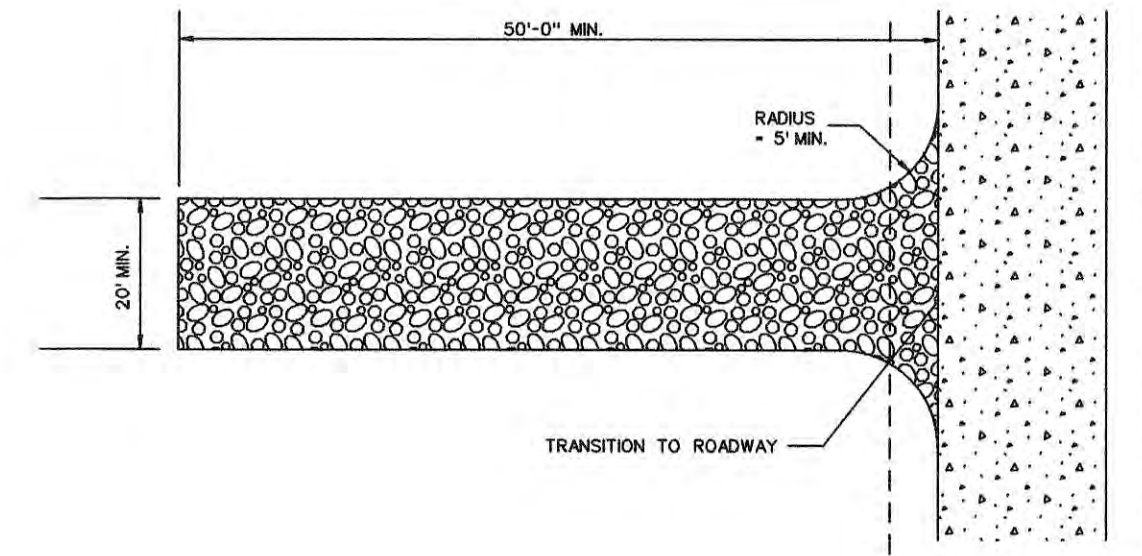


NOTE:
EXTEND FABRIC, FRAME AND FILTER STONE 12' BEYOND END OF INLET ON BOTH ENDS.

TYPE B CURB INLET PROTECTION

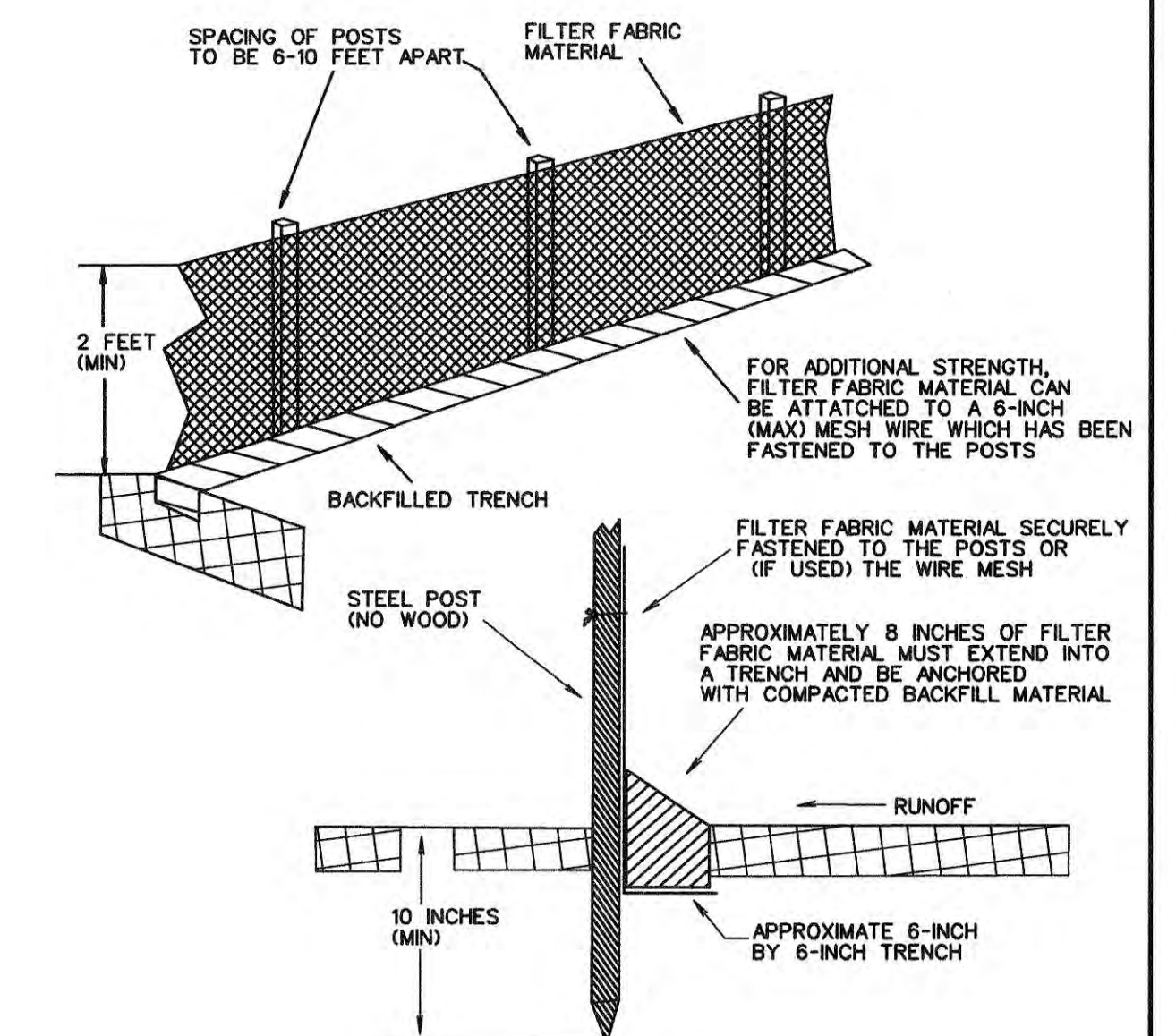


PROFILE



PLAN VIEW

STABILIZED ENTRANCE DETAIL

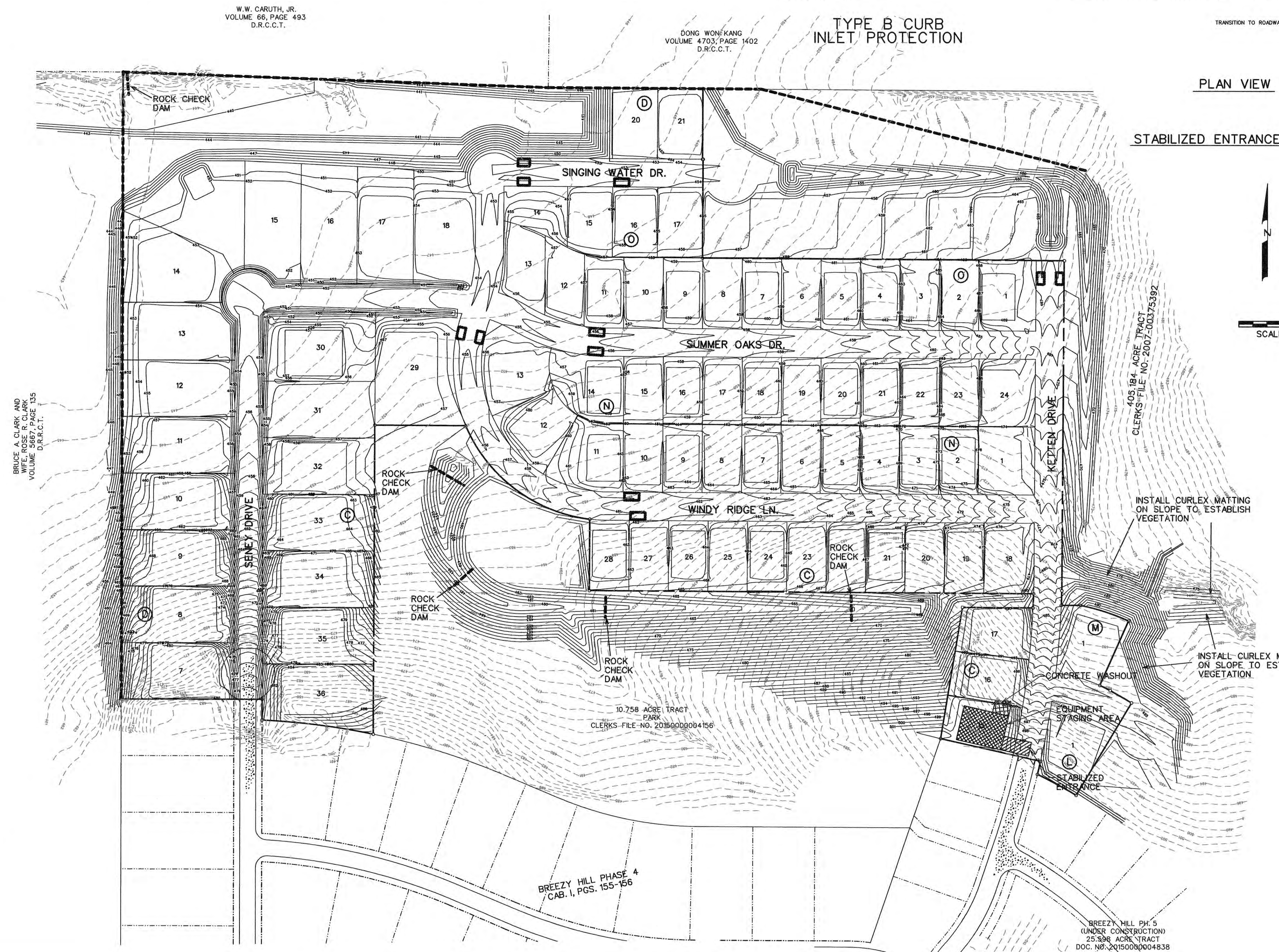


FILTER FABRIC FENCE DETAIL

AREA DISTURBED 36.7 AC
DISTURBED AREA BY BASIN:
BASIN EX1 - 6.6 ACRES - NO SEDIMENT BASIN REQUIRED
BASIN EX2 - 5.2 ACRES - NO SEDIMENT BASIN REQUIRED
BASIN EX3 - 20.7 ACRES - SEDIMENT BASIN REQUIRED
BASIN EX4 - 4.2 ACRES - NO SEDIMENT BASIN REQUIRED

LEGEND

- SILT FENCE (BEFORE CONSTRUCTION) - - - - -
- INLET PROTECTION - [Symbol]



BRUCE A. CLARK AND WIFE, ROSE R. CLARK VOLUME 5567, PAGE 135 D.R.C.C.T.

W.W. CARUTH, JR. VOLUME 66, PAGE 493 D.R.C.C.T.

DONG WONG KANG VOLUME 4703, PAGE 1402 D.R.C.C.T.

405.184 ACRE TRACT CLERKS FILE NO. 2007-00375392

10.758 ACRE TRACT PARK CLERKS FILE NO. 2015000004156

BREEZY HILL PHASE 4 CAB. I, PGS. 155-156

BREEZY HILL PH. 5 (UNDER CONSTRUCTION) 25.898 ACRE TRACT DOC. NO. 20150000004838



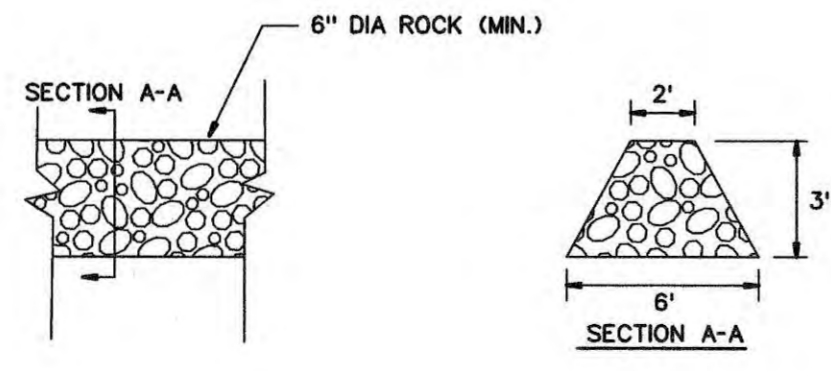
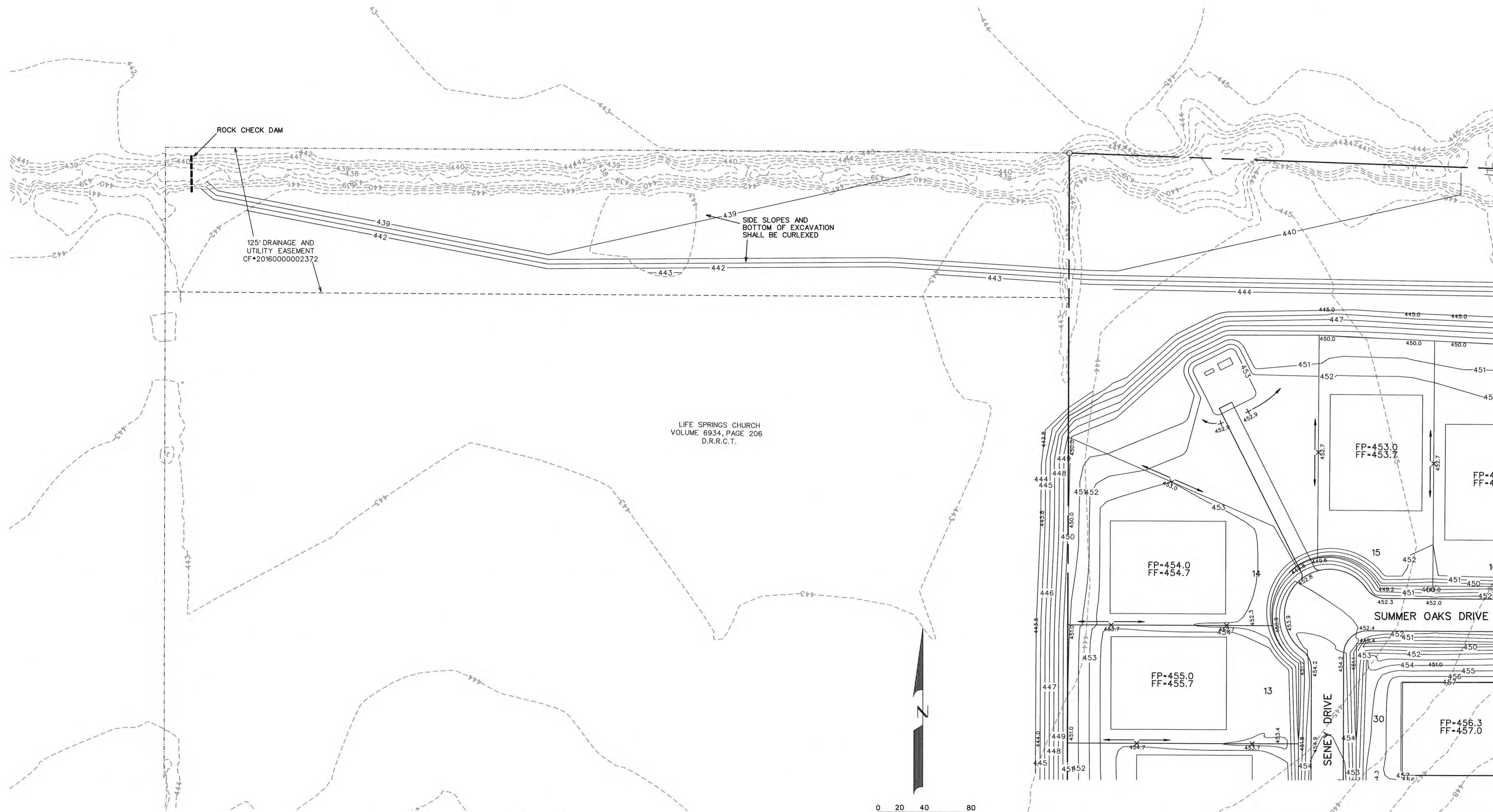
AS-BUILT JULY 2018 INFORMATION PROVIDED BY CONTRACTORS (NOT FIELD VERIFIED)

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

DEVELOPMENT PLANS FOR BREEZY HILL PHASE VI ROCKWALL, TEXAS

EROSION CONTROL PLAN

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE	27 OF 28
15054	JANUARY 2017	1"=100'	



ROCK DAM
N.T.S.

*ROCK DAM SHALL NOT BE BUILT IN SUCH A MANNER THAT RUNOFF IS DIRECTED ONTO THE STREET PAVEMENT BEFORE IT GOES OVER THE TOP OF THE ROCK DAM

LEGEND
ROCK CHECK DAM -----



AS-BUILT JULY 2018
INFORMATION PROVIDED BY CONTRACTORS (NOT FIELD VERIFIED)

<p>CORWIN ENGINEERING, INC. 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972)396-1200 TBPE FIRM #5951</p>			
<p>DEVELOPMENT PLANS FOR BREEZY HILL PHASE VI ROCKWALL, TEXAS</p>			
<p>EROSION CONTROL PLAN</p>			
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	27Bof 28
15054	JANUARY 2017		

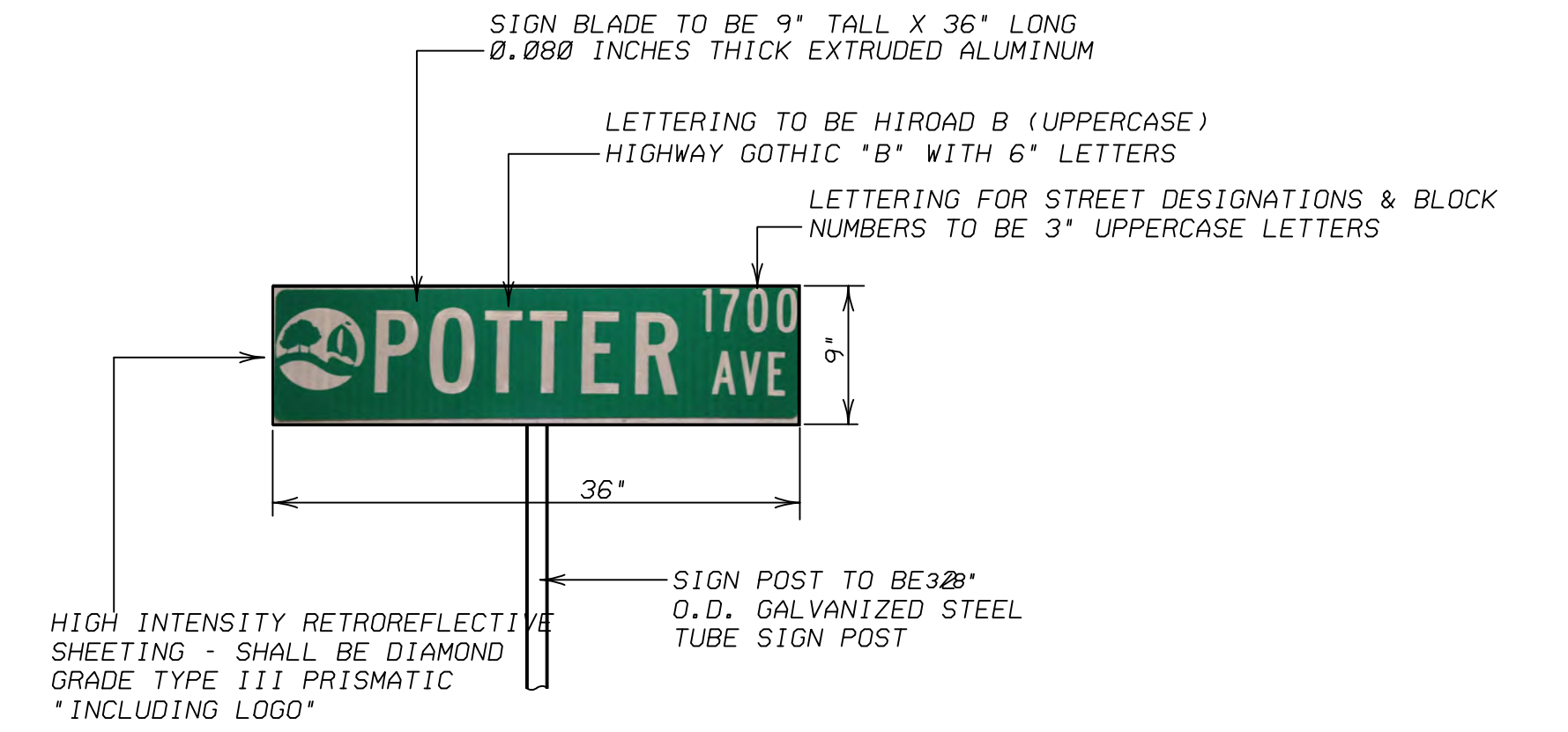
W.W. CARUTH, JR.
VOLUME 66, PAGE 493
D.R.C.C.T.

DONG WON KANG
VOLUME 4703, PAGE 1402
D.R.C.C.T.

BRUCE A. CLARK AND
WIFE ROSE R. CLARK
VOLUME 5961, PAGE 135
D.R.C.C.T.



NOTE: STREET NAME SIGNS SHALL CONSIST OF A WHITE LEGEND *INCLUDING LOGO* ON A GREEN BACKGROUND.



101.084 ACRE TRACT
CLERKS FILE NO. 2007-00375392

NOTE:
NO LIGHT POLES OR PIERS PERMITTED IN NORTH TEXAS MUNICIPAL WATER DISTRICT ESMT.

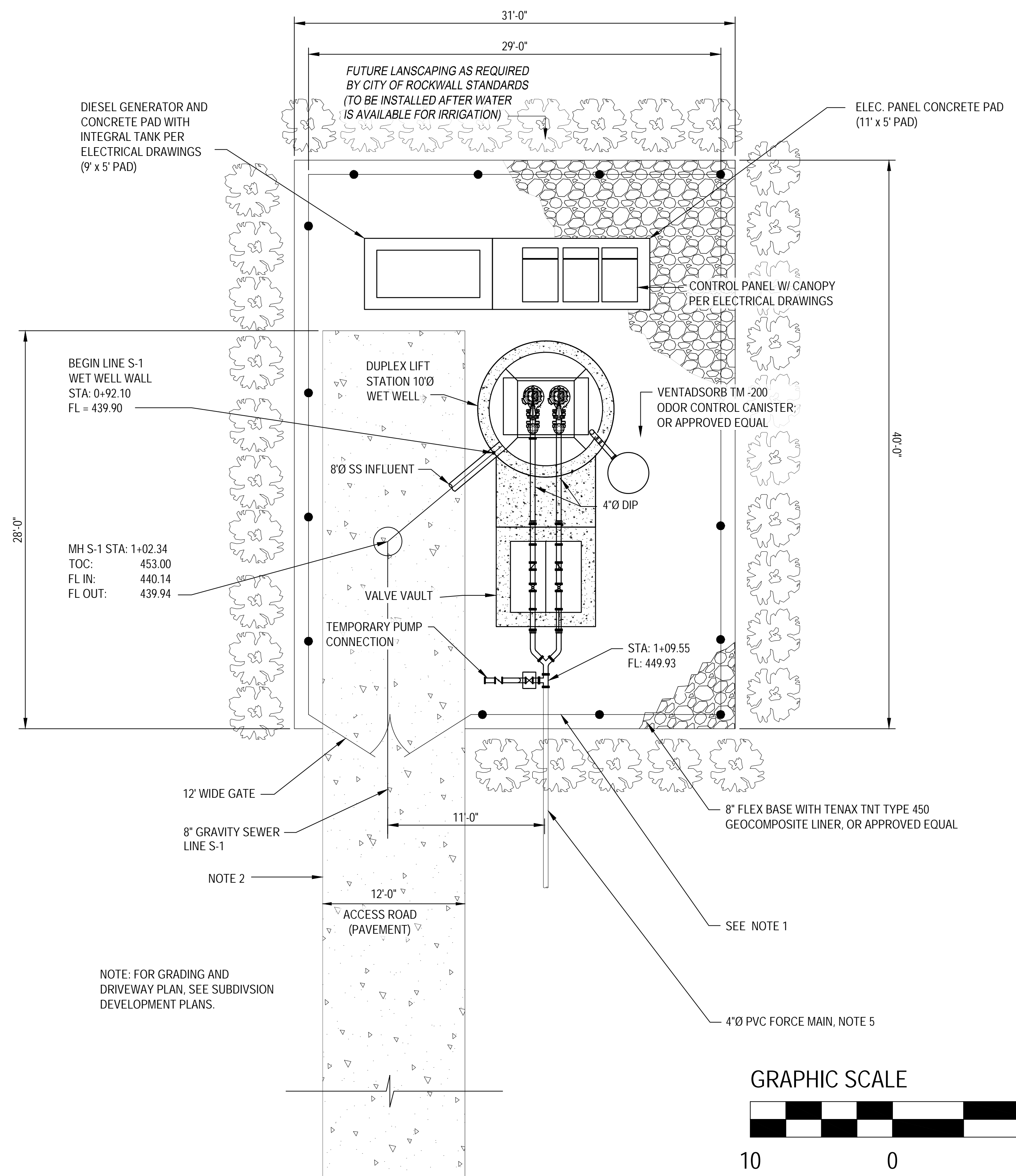
STREET SIGN NOTES

- All signage installed shall comply with the current "Texas Manual on Uniform Traffic Control Devices" and the "Standard Highway Sign Designs for Texas".
- The developer shall be responsible for furnishing and installing all regulatory, warning and street name signs and sign mounts in accordance with the approved engineering plans.
- Block Numbers are required on all street name blades.
- Street Name Blades shall be nine inch (9") tall extruded aluminum. The blades shall be 0.080 inches thick.
- High Intensity Retro reflective Sheeting for Street, Regulatory, and Warning Signs - shall be high intensity diamond grade type III prismatic.
- The Lettering for the street blades shall be HIROAD B with all uppercase fonts. "Highway Gothic B" with six-inch letters. Letters for abbreviated street designations shall be three inches (3") tall with all uppercase fonts (i.e., LN, PKWY, CT, etc.). Block numbers shall be three-inch (3") tall.
- The street sign background shall be green and the legend shall be white.
- The street sign blade must incorporate the current City of Rockwall logo.
- For a street with a cul-de-sac end, a standard W 14-2a shall be mounted over the street name blade.
- Sign posts shall be 2 3/8" O.D. galvanized steel tube sign post with a galvanized finish.
- Sign clamps and brackets shall be high strength aluminum.

- LEGEND**
- ☼ - STREET LIGHT
 - - STOP SIGN
 - - STREET NAME BLADE

AS-BUILT JULY 2018
INFORMATION PROVIDED
BY CONTRACTORS
(NOT FIELD VERIFIED)

<p>CORWIN ENGINEERING, INC. 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972)396-1200 TBPE FIRM #5951</p>			
<p>DEVELOPMENT PLANS FOR BREEZY HILL PHASE VI ROCKWALL, TEXAS</p>			
<p>SIGN AND LIGHT PLAN</p>			
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE:	28 OF 28
15054	JANUARY 2017	1"=100'	



DIESEL GENERATOR AND CONCRETE PAD WITH INTEGRAL TANK PER ELECTRICAL DRAWINGS (9' x 5' PAD)

ELEC. PANEL CONCRETE PAD (11' x 5' PAD)

BEGIN LINE S-1 WET WELL WALL STA: 0+92.10 FL = 439.90

MH S-1 STA: 1+02.34
TOC: 453.00
FL IN: 440.14
FL OUT: 439.94

DUPLEX LIFT STATION 10'0\"/>

CONTROL PANEL W/ CANOPY PER ELECTRICAL DRAWINGS

VENTADSORB TM-200 ODOR CONTROL CANISTER OR APPROVED EQUAL

8" SS INFLUENT

4" Ø DIP

VALVE VAULT

TEMPORARY PUMP CONNECTION

STA: 1+09.55
FL: 449.93

12' WIDE GATE

8" GRAVITY SEWER LINE S-1

NOTE 2

ACCESS ROAD (PAVEMENT)

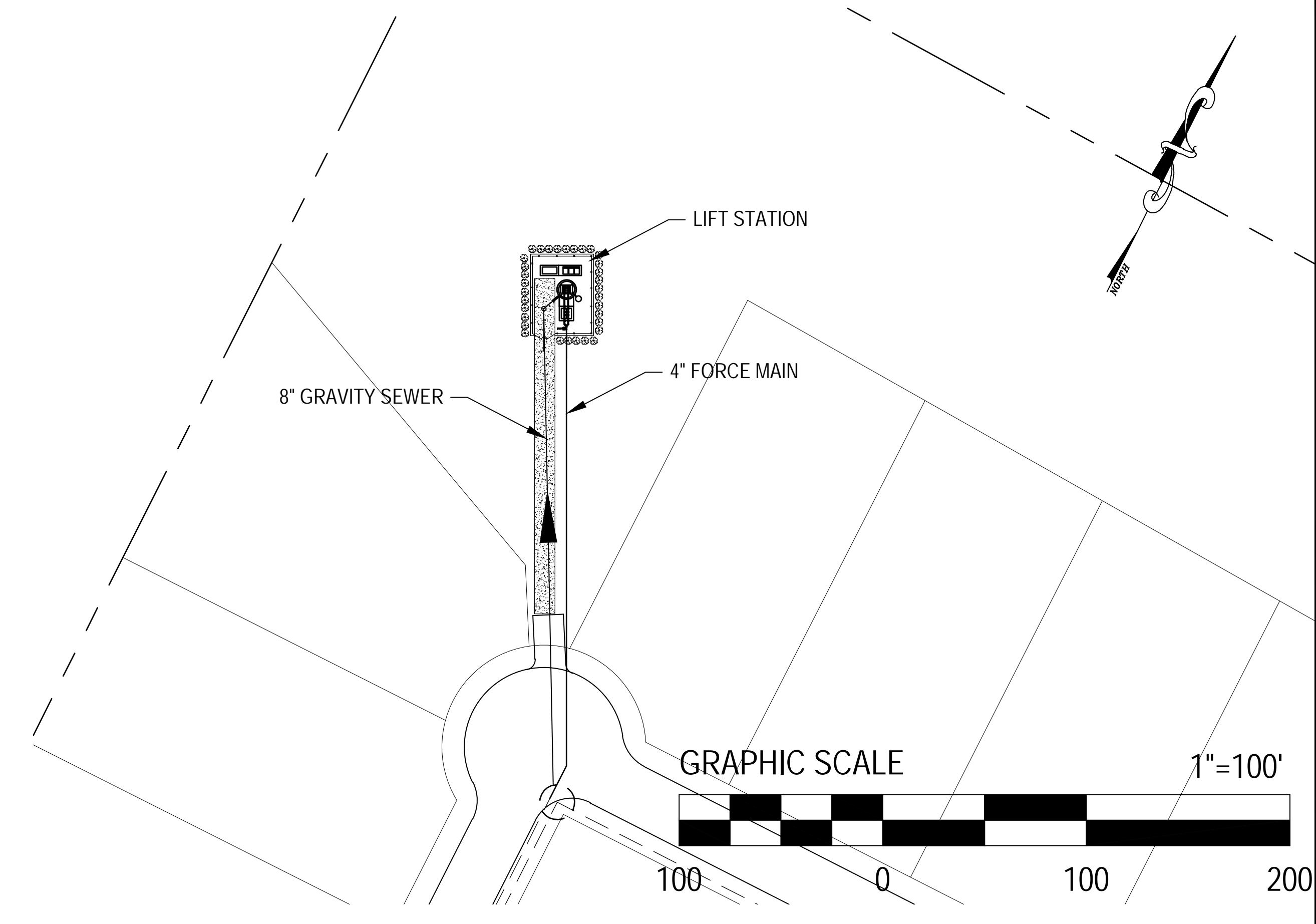
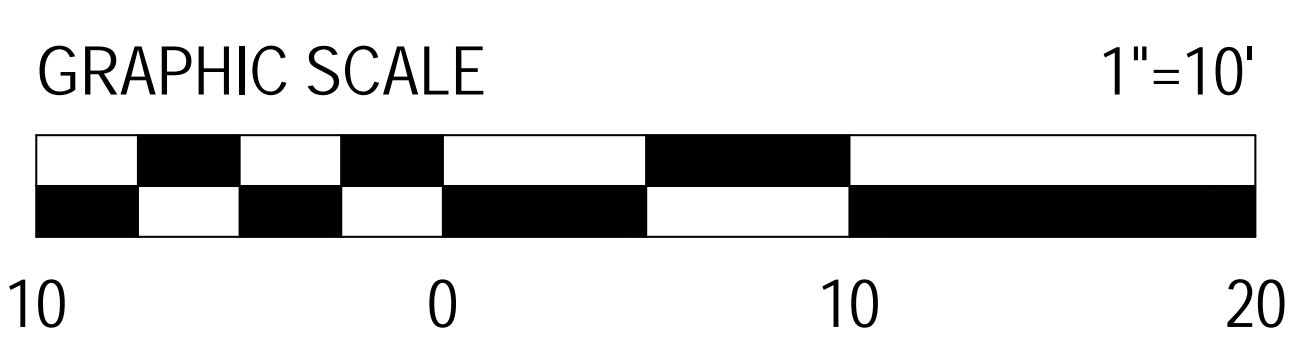
SEE NOTE 1

4" Ø PVC FORCE MAIN, NOTE 5

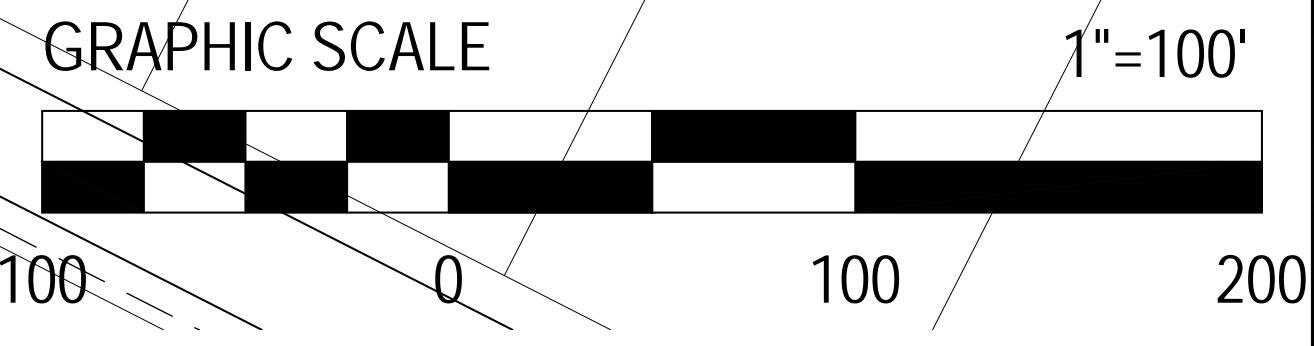
8" FLEX BASE WITH TENAX TNT TYPE 450 GEOCOMPOSITE LINER, OR APPROVED EQUAL

NOTE: FOR GRADING AND DRIVEWAY PLAN, SEE SUBDIVISION DEVELOPMENT PLANS.

SITE PLAN
SCALE: 1"=10'



SITE LOCATION
SCALE: 1"=100'



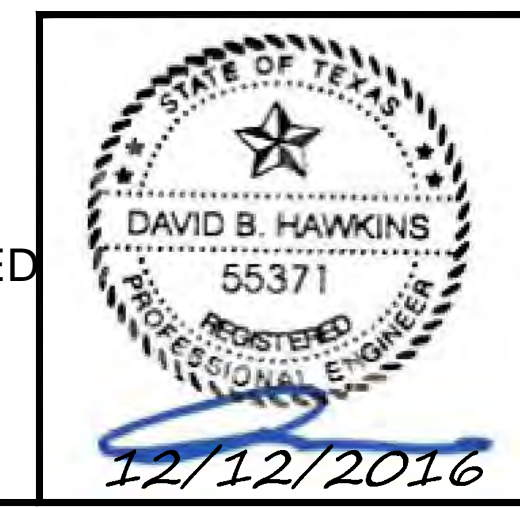
NOTES:

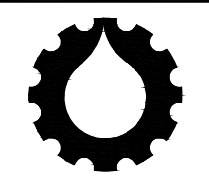
1. WROUGHT IRON FENCE AND GATE. SEE DETAIL SHEET
2. SEE CIVIL SHEETS FOR ACCESS ROAD PLAN AND PROFILE.
3. SEE SHEET LS-2 FOR PUMP AND PIPING DETAILS.
4. SEE CIVIL SHEETS FOR INFLUENT PIPE PLAN AND PROFILE.
5. SEE CIVIL SHEETS FOR FORCE MAIN PLAN & PROFILE.
6. THE FORCE MAIN AND GRAVITY SEWER LINE (S-1) ARE PART OF THE BREEZY HILL PHASE VI CONSTRUCTION PLANS.
7. PROVIDE POSITIVE DRAINAGE AWAY FROM THE LIFT STATION SITE, INCLUDING THE WET WELL, AND ALL ELECTRICAL EQUIPMENT.

LIFT STATION CHARACTERISTICS	PHASE II FULL BUILD OUT	
TYPE:	2	(1 DUTY, 1 STANDBY)
CRITERIA:	100	GAL/DAY/PERSON
DENSITY:	3.0	PERSONS/UNIT
UNITS:	252	UNITS
POPULATION:	756	PERSONS
DEVELOPMENT AREA	73	ACRE
AVERAGE FLOW:	52.5	GPM
PEAKING FACTOR:	4	
PEAK FLOW:	230	GPM
PUMP DESIGN FLOW:	230	GPM
PUMP DESIGN HEAD:	89	FT.
PUMP HORSEPOWER (MAX.)	15	HP
AVERAGE FLOW PUMP RUN TIME:	10	MIN.
FORCE MAIN DIAMETER	4	IN.
FORCE MAIN VELOCITY	5.9	FT/SEC

E:_AEP DESIGN\SKO 16-001\SKO 16-001 LS-1 SITE PLAN.dwg Dec 14, 2016 - 11:48am User: ESTEBAN

AS-BUILT JULY 2018
INFORMATION PROVIDED
BY CONTRACTORS
(NOT FIELD VERIFIED)





**PERKINS
ENGINEERING
CONSULTANTS, INC.**
TBPE REGISTRATION NO. F-8699

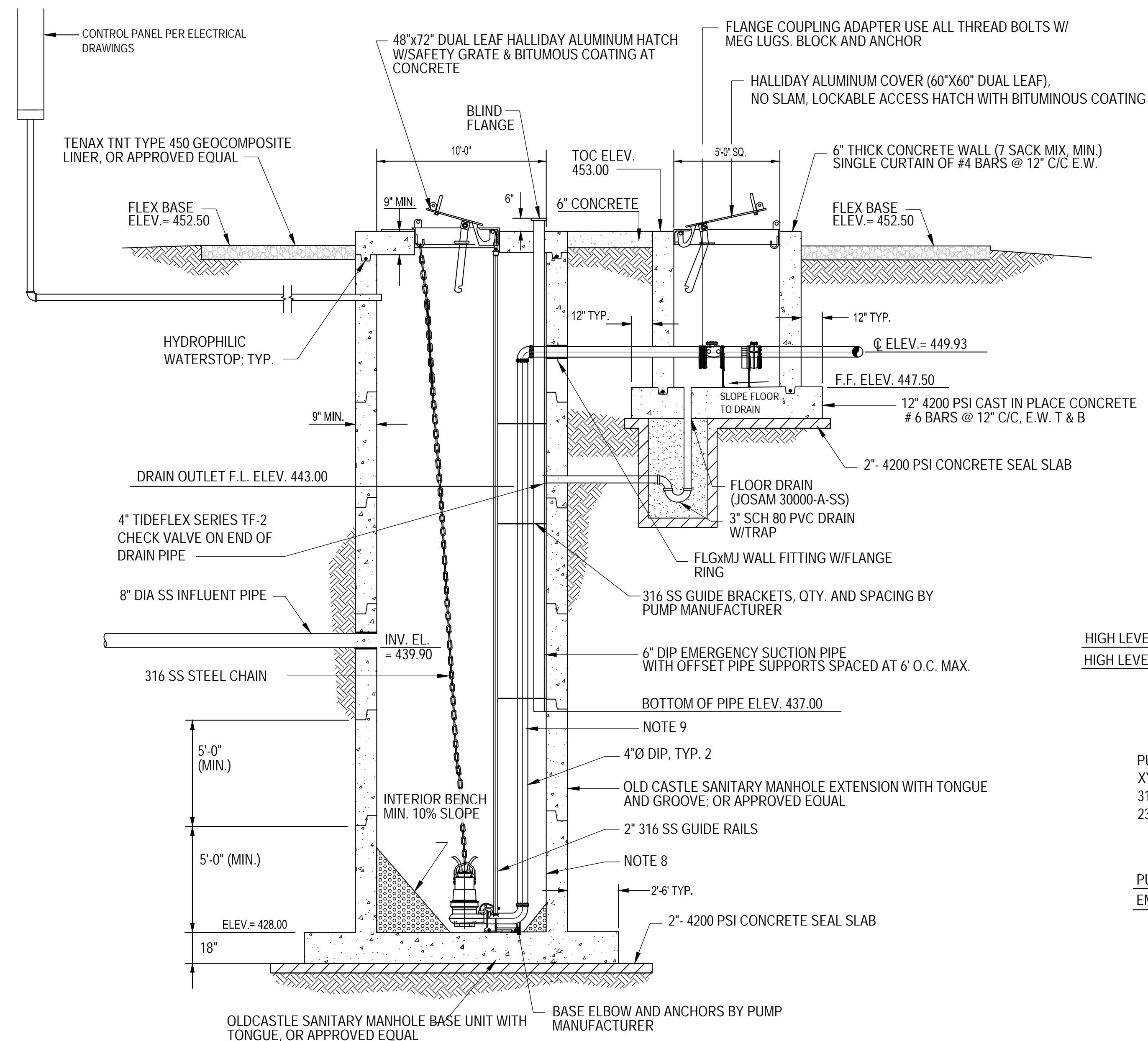
DEVELOPMENT PLANS FOR
**SENEY DRIVE
LIFT STATION**
ROCKWALL, TEXAS

**LIFT STATION
SITE PLAN**

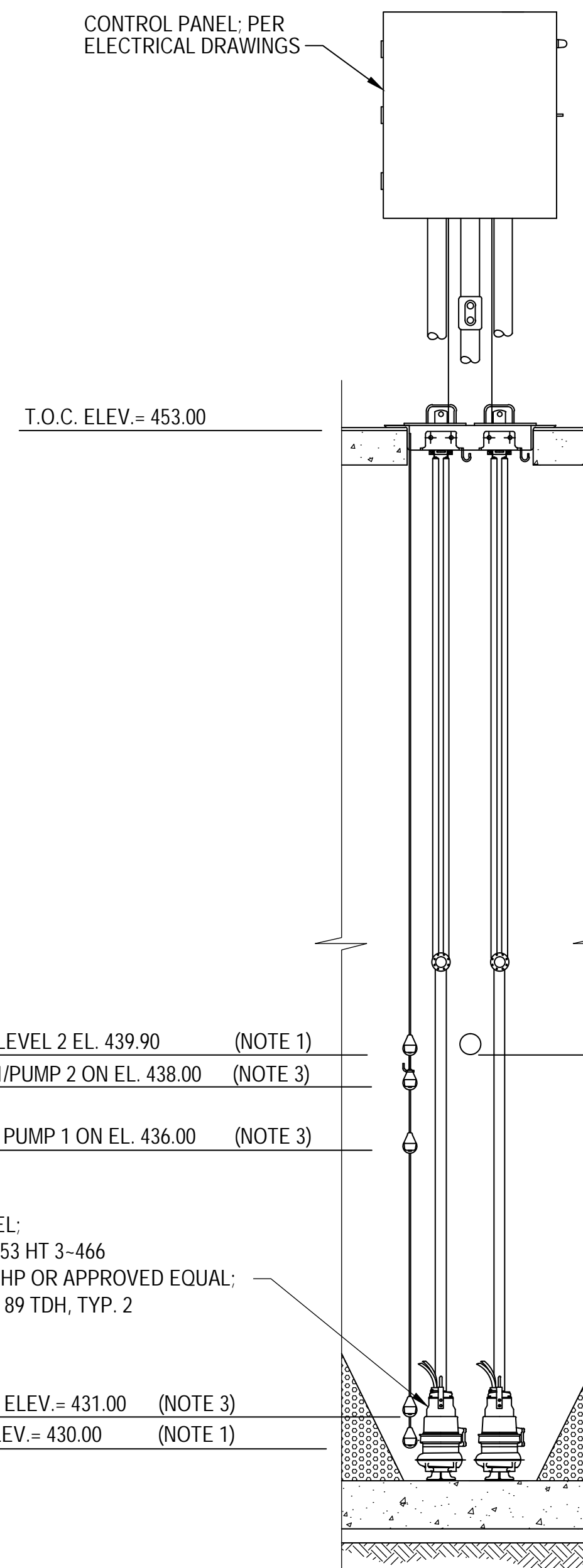
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER SKO 16-001	DATE	SCALE NOTED	LS-1

NOTES:

- ALL ITEMS IN VALVE BOX SHALL BE BLOCKED AND SUPPORTED AS NECESSARY.
- PUMP STATION SHALL BE MANUFACTURED FROM TYPE V PORTLAND CEMENT. ALL OTHER CONCRETE SHALL BE MANUFACTURED FROM TYPE III PORTLAND CEMENT.
- STEEL REINFORCEMENT SHALL BE ASTM A615 GRADE 60 DEFORMED EXCEPT AT MANHOLE SECTIONS.
- MANHOLE SECTIONS:
 - MANHOLE MANUFACTURER SHALL DESIGN WALL THICKNESS AND REINFORCEMENT FOR THE SITE CONDITIONS.
 - RISER SECTION SHALL BE PER ASTM C478 (TYPE V PORTLAND CEMENT).
 - GASKETS AT JOINTS SHALL BE ASTM C443 O-RING. NON-SHRINK GROUT MAY BE USED IN LIEU OF GASKETS.
 - CONNECTIONS TO GRAVITY SEWER LINE(S) SHALL CONFORM TO ASTM C923 WITH 316SS CLAMPS.
 - INTERIOR BENCH (FILLET SLOPE) SHALL BE CONSTRUCTED WITH 2000 PSI CONCRETE USING TYPE V PORTLAND CEMENT.
- BACKFILL AND COMPACTION: BACKFILL SHALL BE CONSTRUCTED OF ON-SITE CLAY SOILS PLACED IN MAXIMUM LIFTS OF 8 INCHES AND COMPACTED TO +5 TO +7% ABOVE OPTIMUM TO 95% OF STANDARD PROCTOR DENSITY. BROWN AND TAN CLAY AND MARLY CLAY SHALL BE COMPACTED AT +5 TO +7% ABOVE OPTIMUM TO 95% ASTM D698. WEATHERED MARL SHALL BE COMPACTED AT +3 TO +6% OF OPTIMUM TO 95% ASTM D98. DEEPER FILL (OVER 8 FEET BELOW FINISHED GRADE) SHALL BE COMPACTED TO +2 TO +5% ABOVE STANDARD PROCTOR DENSITY REGARDLESS OF SOIL TYPE. IF SOIL CONDITIONS DIFFER FROM THOSE EXPECTED, CONTACT ENGINEER FOR COORDINATION.
- CHECK VALVES SHALL BE AMERICAN (ACIPCO) SERIES 600 WITH LEVER AND SPRING.
- PIPE SUPPORTS SHALL BE STANDON MODEL S89 OR EQUAL FLANGED PIPE SUPPORT, OR SHALL BE PER FLANGED PIPE SUPPORT DETAIL.
- AT THE CONTRACTOR'S OPTION, ALL CONCRETE COMPONENTS OF SUMP SHALL EITHER BE CAST USING CON-SHIELD ADDITIVE OR CONTRACTOR MAY COAT ALL INTERIOR EXPOSED CONCRETE AND GROUT SURFACES OF WET WELL WITH RAVEN 505, 125 MIL THICK.
- ALL DIP PIPE WITHIN THE WET WELL AND VALVE VAULT SHALL BE COATED WITH 2 EA. LAYERS OF 6 MIL. OFT DEVOE BAR-RUST 233H HIGH PERFORMANCE EPOXY, OR APPROVED EQUAL. D.I.P. SHALL BE EPOXY LINED.
- INSTALL GATE VALVES WITH SHAFTS HORIZONTAL. PROVIDE HORIZONTAL TO VERTICAL GEARED OPERATOR WITH 2" OPERATOR NUT.
- ALL BOLTS, NUTS, WASHERS, ANCHOR BOLTS, FASTENERS, AND RELIEF STRAIN GRIPS SHALL BE 316SS. ANCHOR BOLT SYSTEMS SHALL BE EPOXY OR ADHESIVE TYPE BY HILTI, OR APPROVED EQUAL.



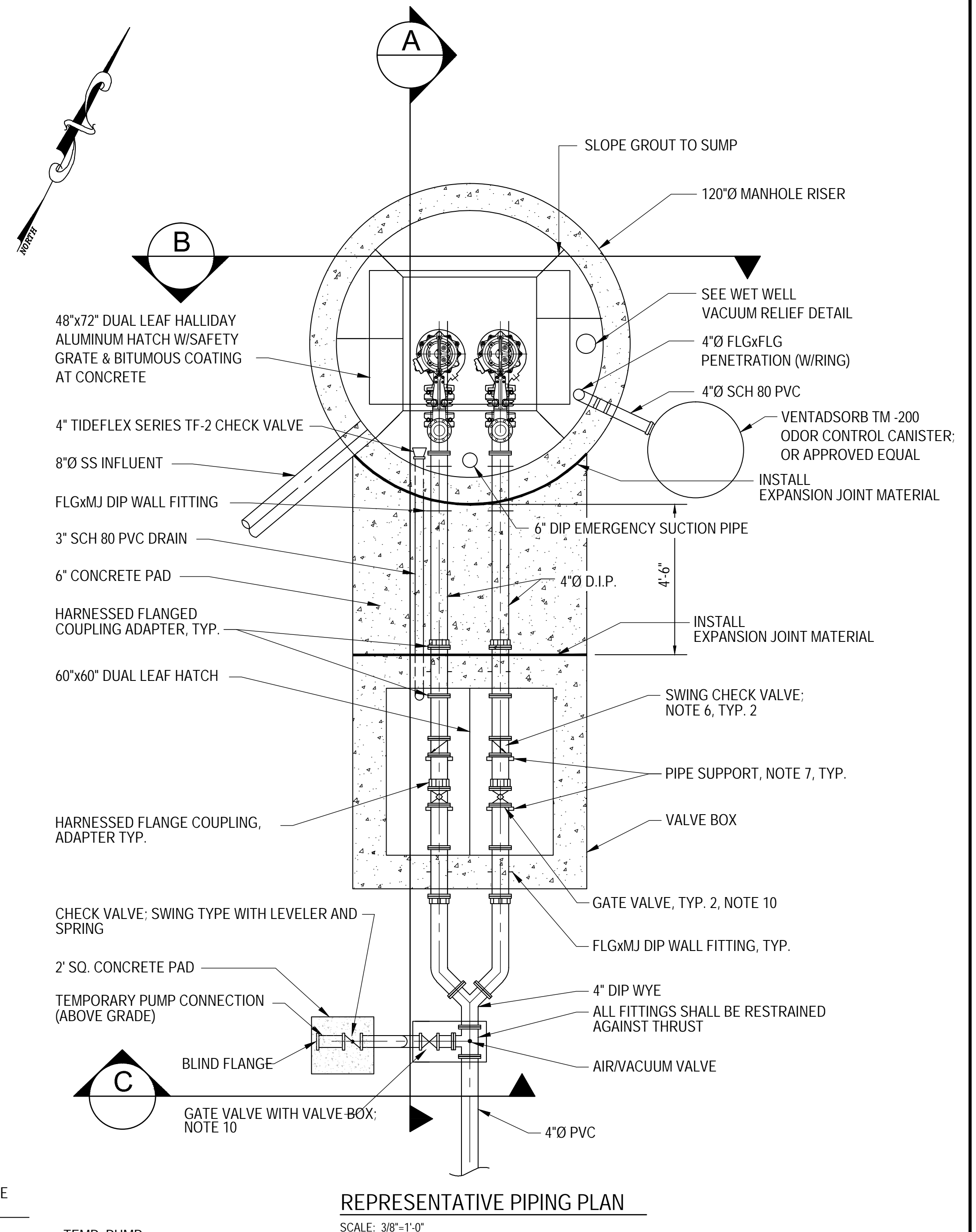
REPRESENTATIVE SECTION A
SCALE: 1/4"=1'-0"



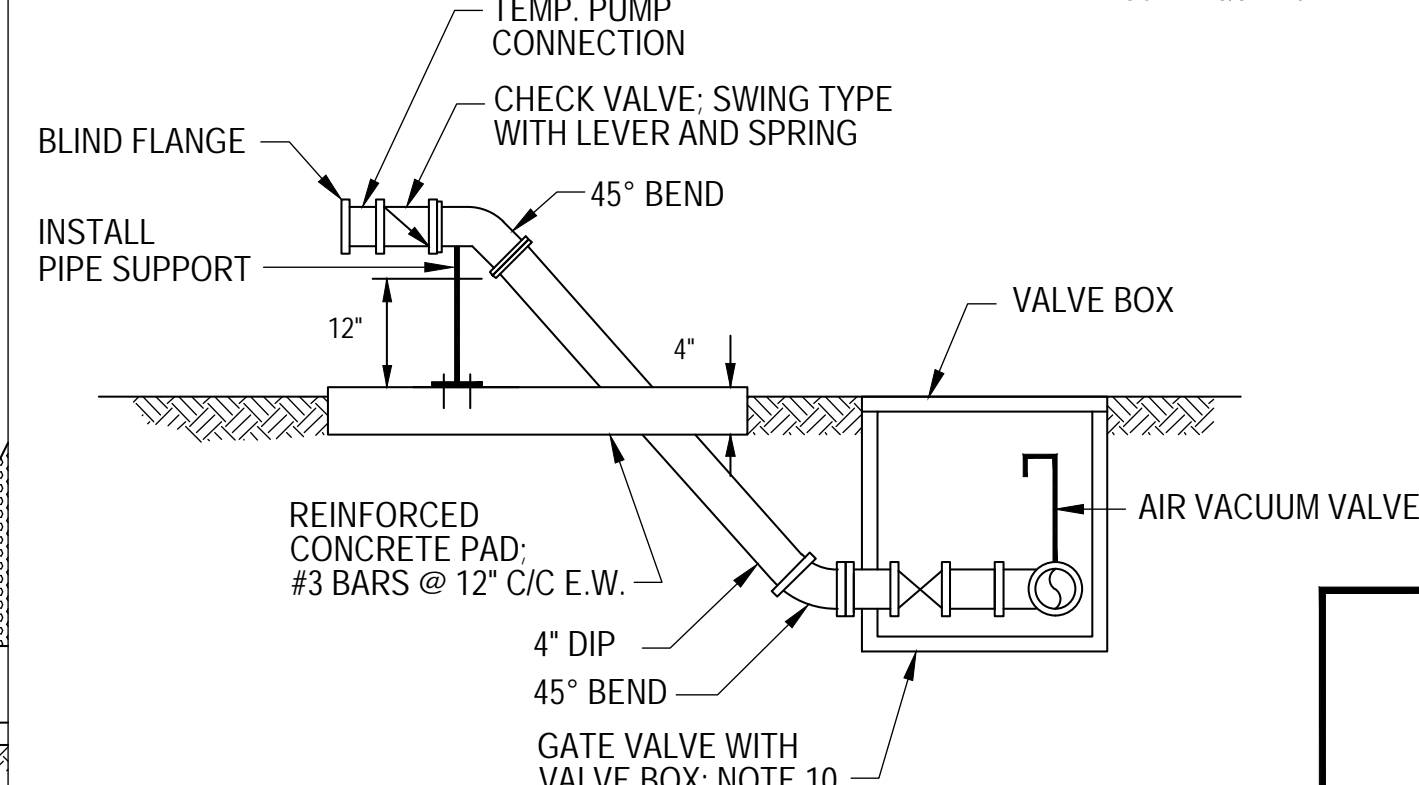
PARTIAL SECTION B
SCALE: 1/4"=1'-0"

NOTE:

- FLOATS SHALL BE FIELD ADJUSTED AS NECESSARY.
- ALL PUMPS SHALL RUN ON "HAND" DURING EMERGENCY OFF CONDITION
- LEVELS TO BE SET IN PLC PROGRAM, CONTROLLED BY A PRESSURE TRANSDUCER.
- PRESSURE TRANSDUCER SHALL BE THE PRIMARY ELEMENT FOR PUMP CONTROL. FLOATS ARE FOR EMERGENCY BACKUP.



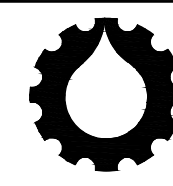
REPRESENTATIVE PIPING PLAN
SCALE: 3/8"=1'-0"



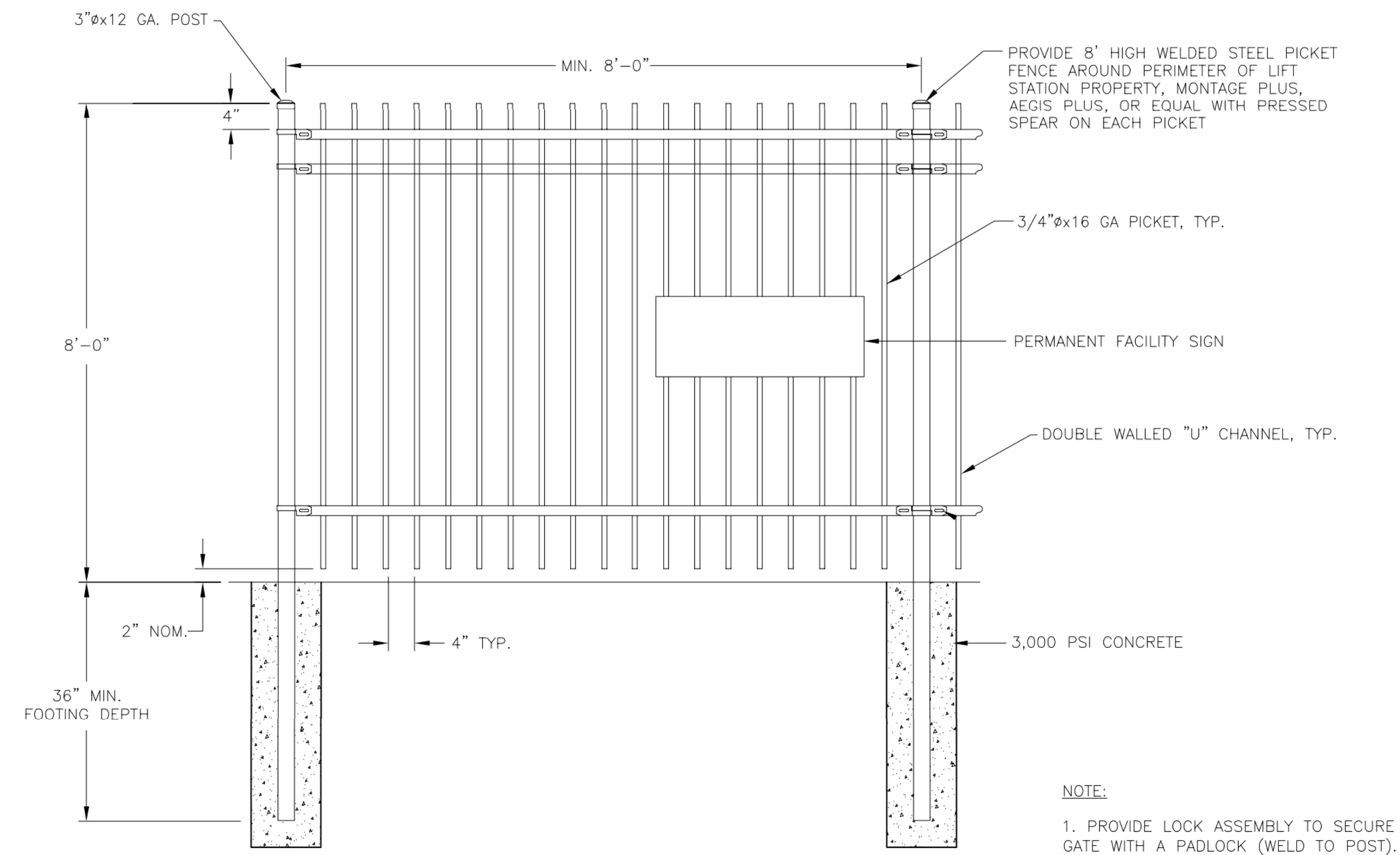
SECTION C
N.T.S.

AS-BUILT JULY 2018
INFORMATION PROVIDED
BY CONTRACTORS
(NOT FIELD VERIFIED)



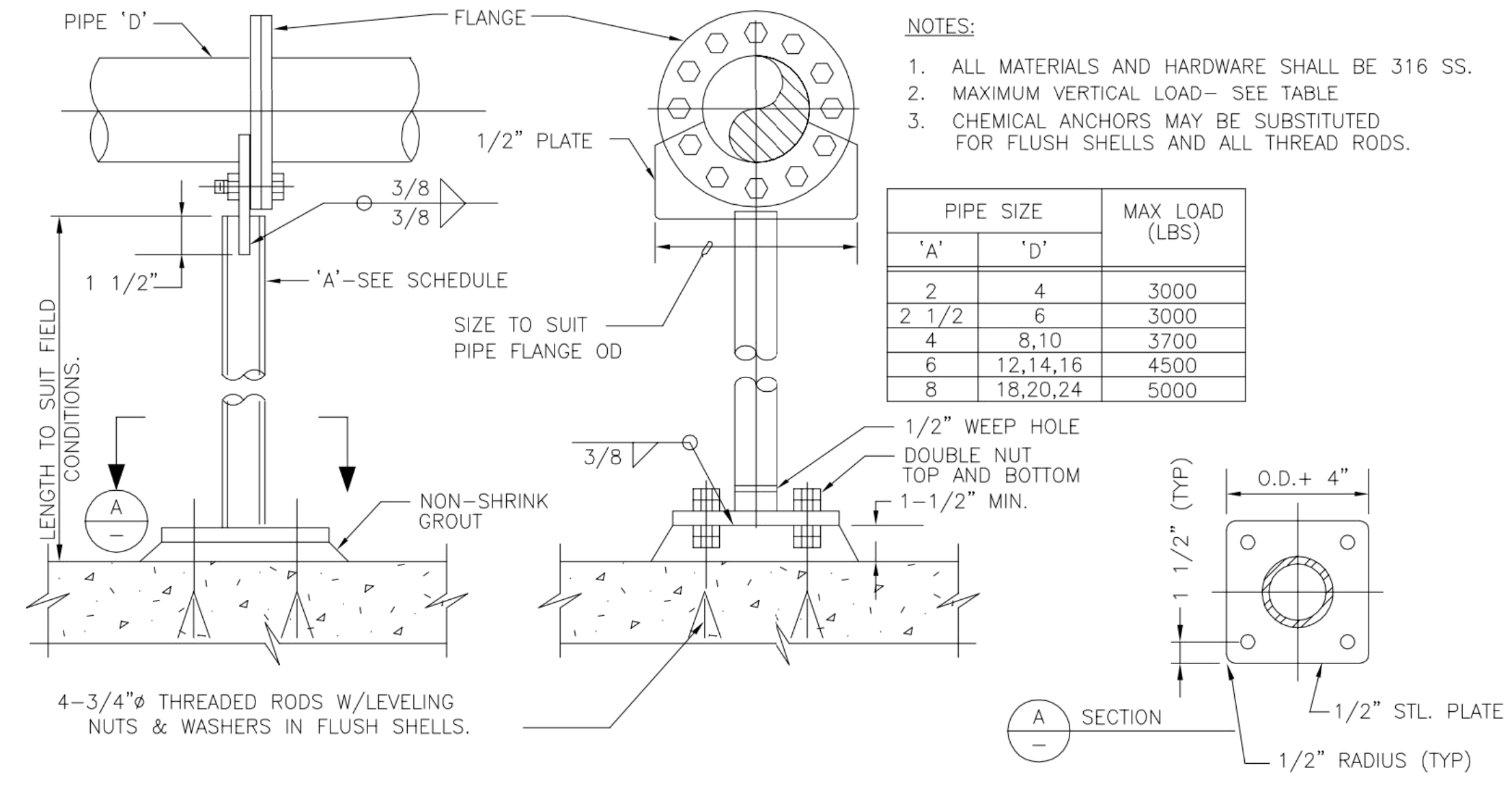
 PERKINS ENGINEERING CONSULTANTS, INC. TBPE REGISTRATION NO. F-8699			
DEVELOPMENT PLANS FOR SENEY DRIVE LIFT STATION ROCKWALL, TEXAS			
LIFT STATION PLAN AND SECTIONS			
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE	LS-2
SKO 16-001		NOTED	

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TUBULAR STEEL FENCE DETAIL
NOT TO SCALE

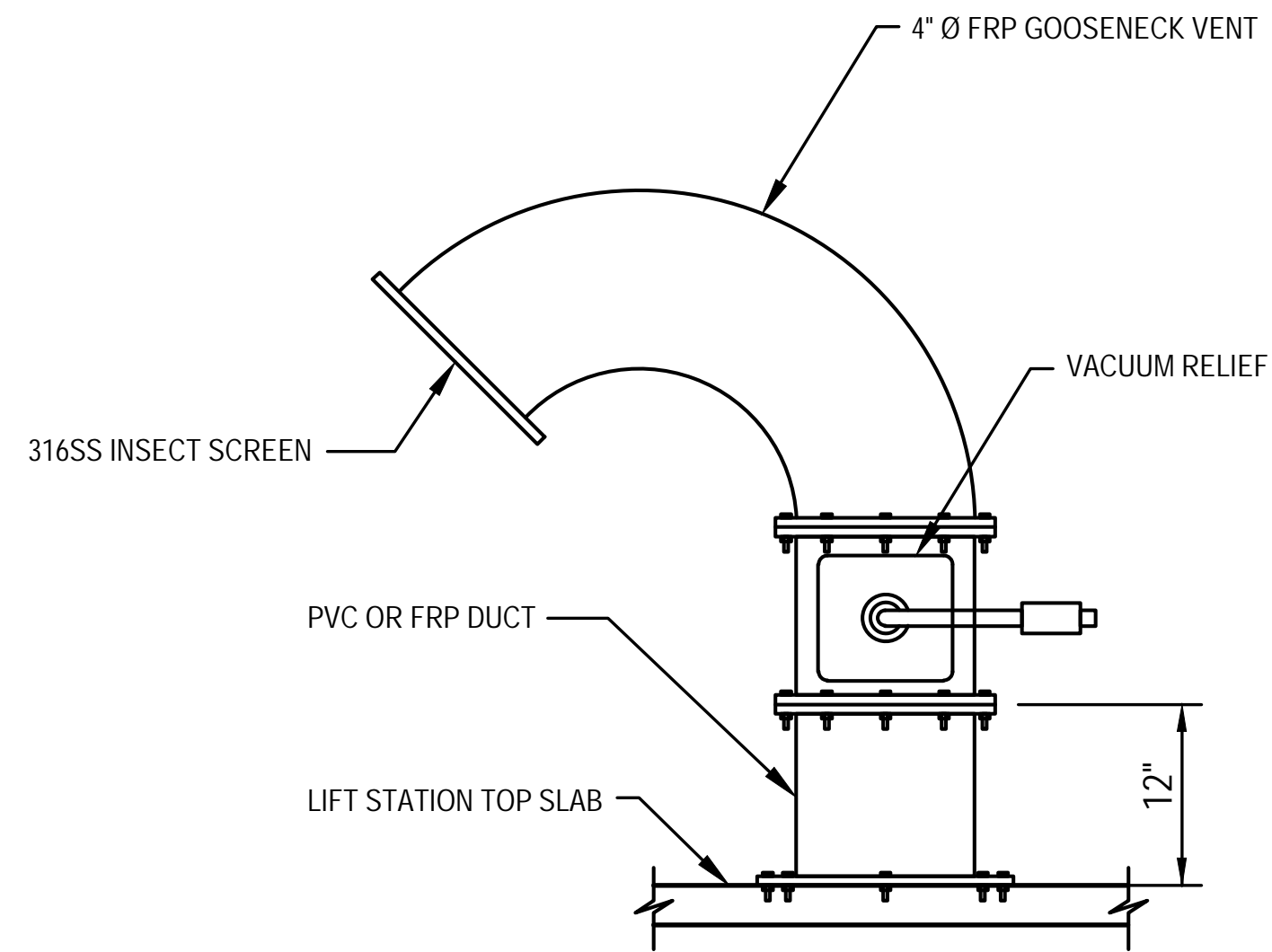
- NOTE:**
1. PROVIDE LOCK ASSEMBLY TO SECURE GATE WITH A PADLOCK (WELD TO POST).
 2. PROVIDE 12' WIDE SWING GATE (TWO 6' WIDE PANELS)



- NOTES:**
1. ALL MATERIALS AND HARDWARE SHALL BE 316 SS.
 2. MAXIMUM VERTICAL LOAD- SEE TABLE
 3. CHEMICAL ANCHORS MAY BE SUBSTITUTED FOR FLUSH SHELLS AND ALL THREAD RODS.

PIPE SIZE		MAX LOAD (LBS)
'A'	'D'	
2	4	3000
2 1/2	6	3000
4	8,10	3700
6	12,14,16	4500
8	18,20,24	5000

FLANGED PIPE SUPPORT
NOT TO SCALE



- NOTE:**
1. ALL HARDWARE SHALL BE 316SS.
 2. BACKDRAFT SHALL OPEN WHEN VACUUM EXCEEDS 1 INCH W.C.

VACUUM RELEASE
NOT TO SCALE

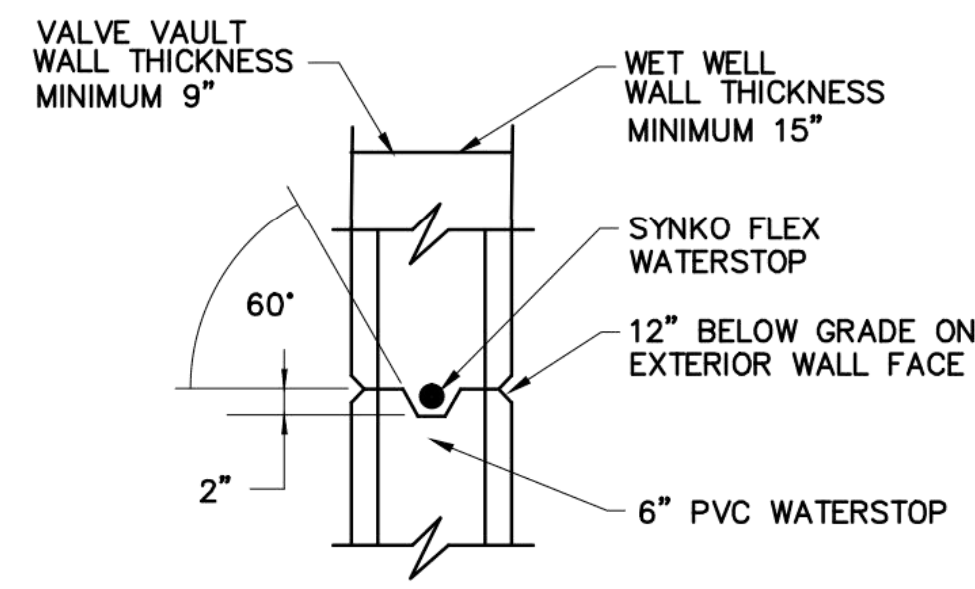
AS-BUILT JULY 2018
INFORMATION PROVIDED
BY CONTRACTORS
(NOT FIELD VERIFIED)



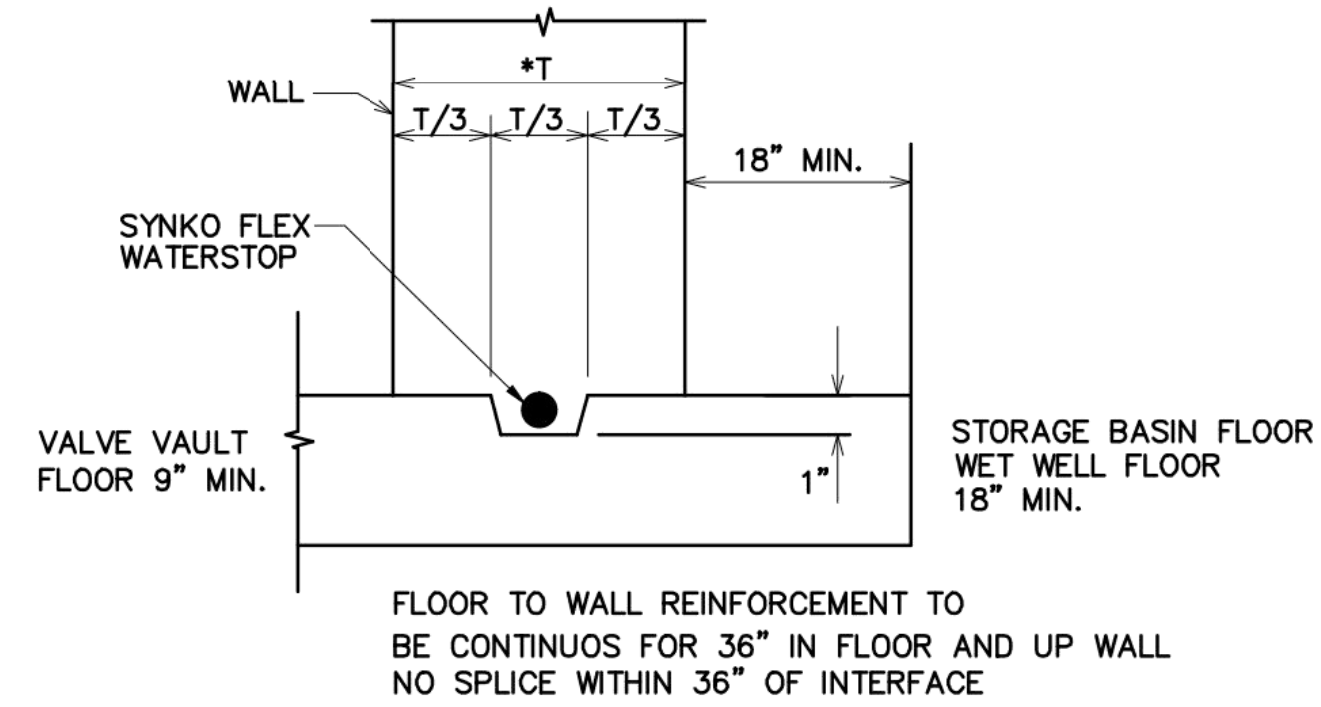
<p>PERKINS ENGINEERING CONSULTANTS, INC. TBPE REGISTRATION NO. F-8699</p>			
<p>DEVELOPMENT PLANS FOR SENEY DRIVE LIFT STATION ROCKWALL, TEXAS</p>			
<p>LIFT STATION DETAILS</p>			
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE	LS-3
SKO 16-001		NOTED	

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WALLS SECTION



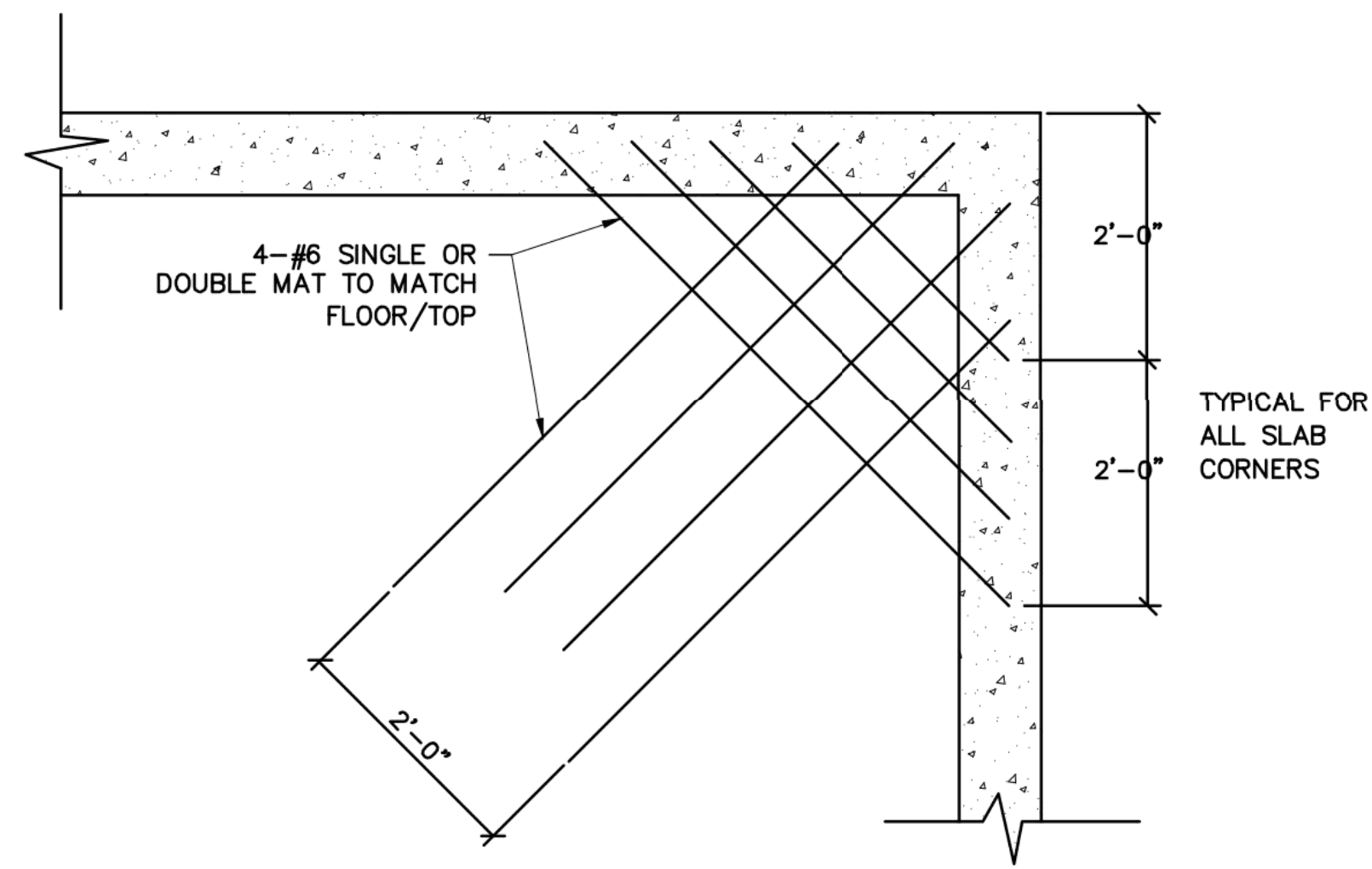
WALL - FLOOR CONNECTION



WATER-STOP CONSTRUCTION

NOT TO SCALE

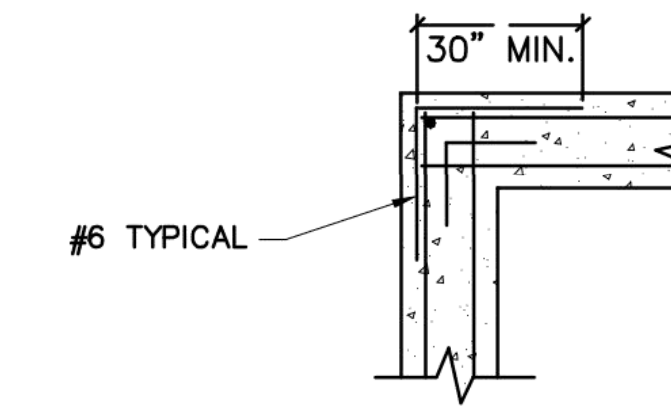
FLOOR TO WALL REINFORCEMENT TO BE CONTINUOUS FOR 36" IN FLOOR AND UP WALL NO SPLICE WITHIN 36" OF INTERFACE



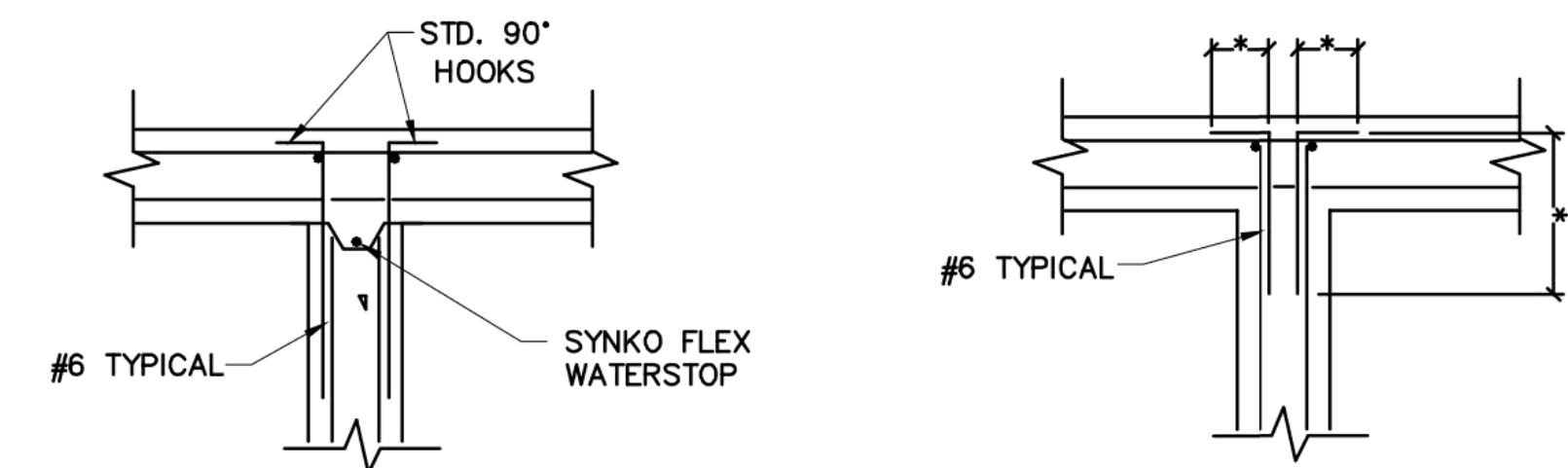
ADDITIONAL REINFORCING @ EXTERIOR CORNER

NOT TO SCALE

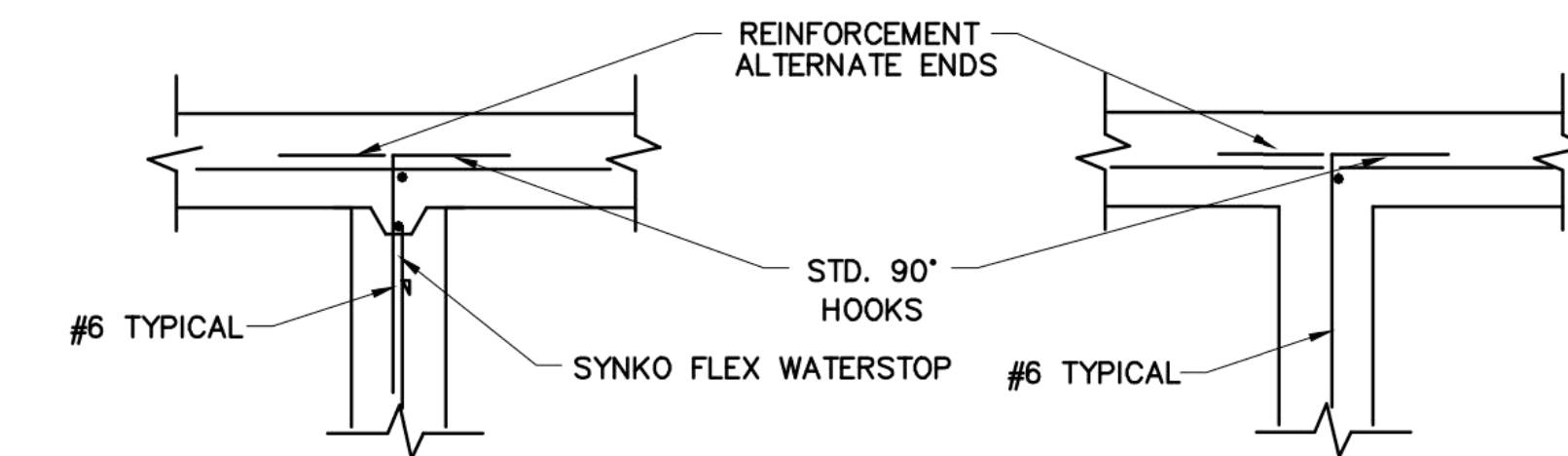
* MINIMUM LAP LENGTH
ALL 90° BENDS AS SHOWN UNLESS OTHERWISE INDICATED ON DESIGN DRAWINGS. INSTALL ADDITIONAL VERTICAL BARS AT HOOKS AS SHOWN.



TYPICAL CORNER REINFORCEMENT

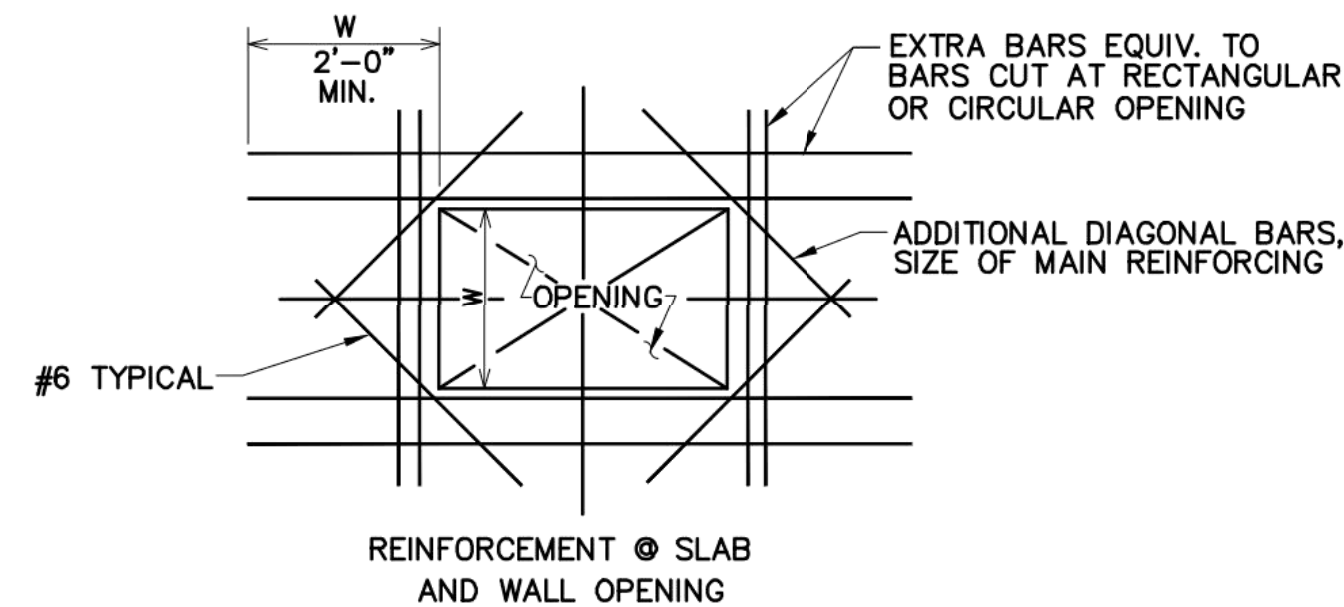


TYPICAL INTERSECTION FOR DOUBLE CURTAIN



CORNER REINFORCEMENT DETAILS

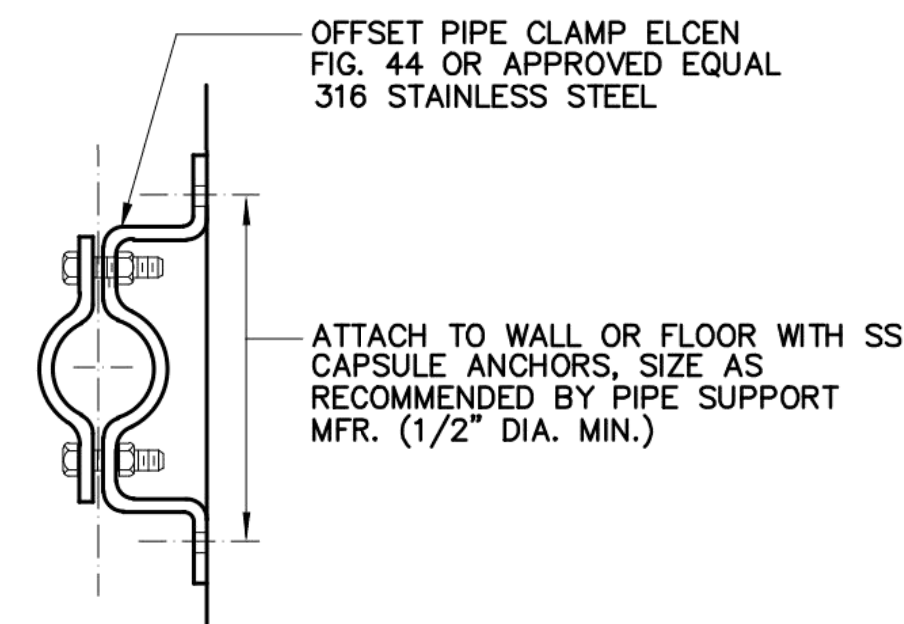
NOT TO SCALE



- NOTES:
1. REINFORCING AS INDICATED ON SECTION DETAIL
2. W=DIMENSION OF OPENING PERPENDICULAR TO BARS CUT.

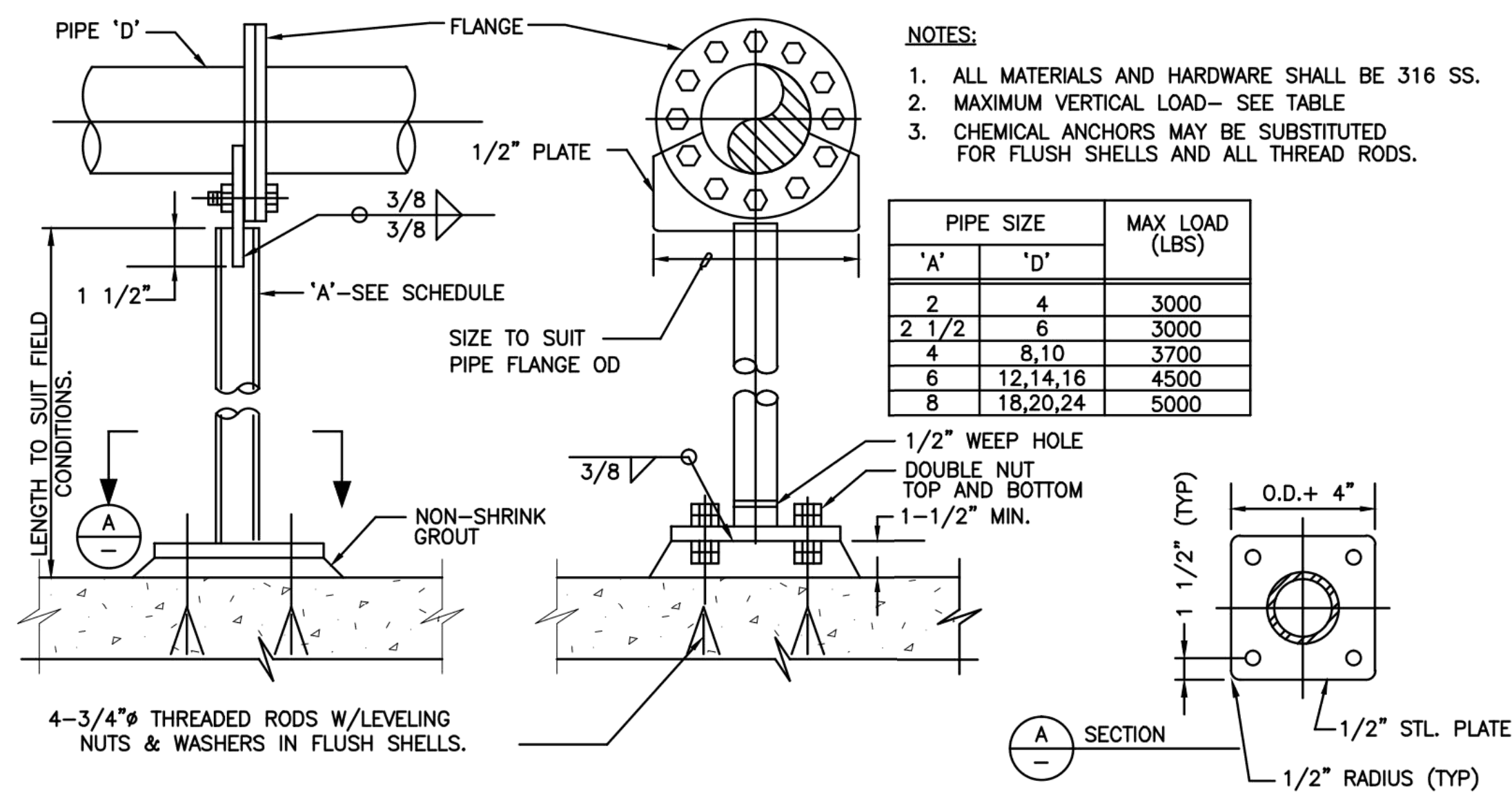
ADDITIONAL REINFORCING AROUND OPENINGS

NOT TO SCALE



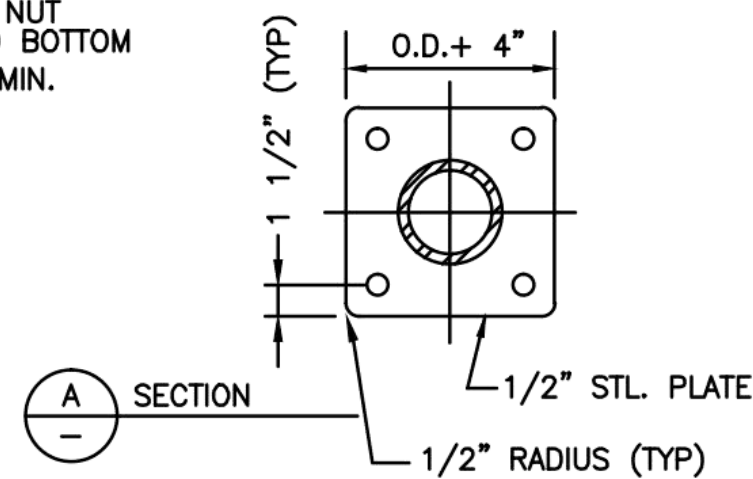
TYPICAL OFFSET PIPE SUPPORT

NOT TO SCALE



- NOTES:
1. ALL MATERIALS AND HARDWARE SHALL BE 316 SS.
2. MAXIMUM VERTICAL LOAD- SEE TABLE
3. CHEMICAL ANCHORS MAY BE SUBSTITUTED FOR FLUSH SHELLS AND ALL THREAD RODS.

PIPE SIZE		MAX LOAD (LBS)
'A'	'D'	
2	4	3000
2 1/2	6	3000
4	8,10	3700
6	12,14,16	4500
8	18,20,24	5000



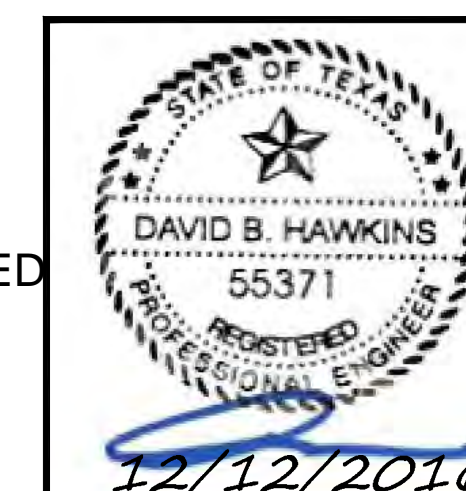
FLANGED PIPE SUPPORT

NOT TO SCALE

BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

ONE INCH

AS-BUILT JULY 2018
INFORMATION PROVIDED BY CONTRACTORS (NOT FIELD VERIFIED)



DEVELOPMENT PLANS FOR
SENEY DRIVE LIFT STATION
ROCKWALL, TEXAS

LIFT STATION DETAILS

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER SKO 16-001	DATE	SCALE NOTED	LS-4

CITY OF ROCKWALL, TEXAS
SPECIFICATIONS FOR LIFT STATION CONTROL PANEL

ELECTRICAL NOTES

1. ALL WORK SHALL COMPLY WITH NFPA 820 REGARDING HAZARDOUS CLASSIFICATION, GROUP AND DIVISION.
2. ALL ABOVE GRADE CONDUIT SHALL BE RIGID ALUMINUM OR PVC COATED ALUMINUM AS APPLICABLE.
3. ALL INSULATED CONDUCTORS SHALL BE COPPER, XHHW, UNLESS APPROVED BY ENGINEER & OWNER
4. ALL GROUNDING CONDUCTORS SHALL TINNED COPPER.
5. ALL EXPOSED ENCLOSURES SHALL BE NEMA 4X 316 SS
6. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE WITH ELECTRIC COMPANY.
7. THE CONTRACTOR SHALL FURNISH AND PROVIDE EXPLOSION PROOF, 3 PHASE, 60 HZ. MOTORS.
8. THE CONTRACTOR SHALL FURNISH AND PROVIDE 110 V RECEPTACLE INSIDE CONTROL PANEL.
9. THE CONTRACTOR SHALL PROVIDE COPPER WIRING WITH GROUND IN RIGID CONDUIT FROM METER TO SERVICE DISCONNECT TO CONTROL PANEL.
10. THE CONTRACTOR SHALL COORDINATE ROUTING IN THE FIELD. ALL ELECTRICAL WORK SHALL CONFORM WITH NEC, NATIONAL, STATE, AND LOCAL CODES.
11. THE CONTRACTOR SHALL VERIFY VOLTAGE PRIOR TO PLACING ORDER FOR PUMP MOTORS.
12. THE CONTRACTOR SHALL FURNISH AND PROVIDE LIGHTNING ARRESTOR.
13. THE CONTRACTOR SHALL FURNISH AND PROVIDE RUN TIME METER AND RUN LIGHT FOR EACH PUMP.
14. THE CONTRACTOR SHALL FURNISH AND PROVIDE SEAL FAIL RELAYS WITH PILOT LIGHT, MAIN CIRCUIT BREAKER, AND EMERGENCY RECEPTACLE.
15. THE CONTRACTOR SHALL FURNISH AND PROVIDE CONTROL PANEL AND MAIN DISCONNECT SHALL BE SIZED ACCORDING TO NEC.
16. THE CONTRACTOR SHALL FURNISH AND PROVIDE TWO EXTRA FUSES OF EVERY SIZE AND TYPE USED, AND SHALL BE STORED AT THE LOCATION WHERE NEEDED.
17. CONTRACTOR IS RESPONSIBLE FOR NEC REQUIREMENT CLEARANCE AROUND AND ABOVE OF ALL ELECTRICAL EQUIP. (NEC 110.26)
18. ALL CIRCUIT HOME-RUNS SHALL BE MINIMUM 2-#12, #12G., 3/4" C. VOLTAGE DROP SHALL COMPLY WITH NEC.
19. FLEXIBLE CONDUIT MAY BE USED ONLY FOR FINAL CONNECTION TO EQUIPMENT. (MAXIMUM LENGTH 6').
20. ALL PANEL DIRECTORY SHOULD BE TYPED.
21. CONTRACTOR SHALL PROVIDE LAMPS FOR ALL LUMINARIES.
22. MINIMUM POWER CONDUCTORS, 2-#12, 1-#12 GROUND.
23. MINIMUM CONDUIT ABOVE GRADE, 3/4" (RIGID ALUM.) BELOW GRADE, 1" (SCH-40 PVC), TRANSITION FROM ABOVE TO BELOW GRADE SHALL BE PVC COATED ALUMINUM.
24. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO INSURE A COMPLETE WORKING SYSTEM.
25. COORDINATE LOCATION OF ALL PANELS WITH OWNER.
26. THESE PLANS ARE SCHEMATIC, VERIFY EQUIPMENT LOCATION AND CONDUIT ROUTING, ETC. PRIOR TO BID.
27. CONTRACTOR SHALL PROVIDE PROPER CONDUIT SEAL AS APPLICABLE FOR TERMINATION.
28. INSTALLATION OF WORK SHALL COMPLY WITH ALL LOCAL AND STATE CODES AND AUTHORITIES HAVING JURISDICTION.
29. ELECTRICAL SEAL FITTINGS SHALL BE FILLED BY CITY, NOT BY CONTRACTOR.
30. CONTRACTOR SHALL PROVIDE AND INSTALL 'CORD CAPS' FOR ALL CONDUCTORS EXITING THE WET WELL AT THE FIRST JUNCTION BOX.

ABRIDGED T.C.E.Q. NOTES

§217.60. LIFT STATION, WET WELL, AND DRY WELL DESIGNS.
(A) PUMP CONTROLS.

- L13.5;(1) A LIFT STATION PUMP MUST OPERATE AUTOMATICALLY, BASED ON THE WATER LEVEL IN A WET WELL.
(2) THE LOCATION OF A WET WELL LEVEL MECHANISM MUST ENSURE THAT THE MECHANISM IS UNAFFECTED BY CURRENTS, RAGS, GREASE, OR OTHER FLOATING MATERIALS.
(3) A LEVEL MECHANISM MUST BE ACCESSIBLE WITHOUT ENTERING THE WET WELL.
(5) MOTOR CONTROL CENTERS MUST BE MOUNTED AT LEAST 4.0 INCHES ABOVE GRADE TO PREVENT WATER INTRUSION AND CORROSION FROM STANDING WATER IN THE ENCLOSURE.

(6) ELECTRICAL EQUIPMENT AND ELECTRICAL CONNECTIONS IN A WET WELL OR A DRY WELL MUST MEET NATIONAL FIRE PREVENTION ASSOCIATION 70 NATIONAL ELECTRIC CODE EXPLOSION PREVENTION REQUIREMENTS, UNLESS CONTINUOUS VENTILATION IS PROVIDED.

NOTE: REFER TO TECHNICAL PREVISIONS IN CONTRACTS DOCUMENTS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.
ONE INCH

GENERAL:
THE CONTROL SYSTEM SHALL BE DESIGNED TO OPERATE THE REQUIRED NUMBER OF PUMPS SPECIFIED ON THE DRAWING AT THE POWER CHARACTERISTICS SHOWN ON THE PLANS.
THE CONTROL FUNCTION SHALL PROVIDE FOR THE OPERATION OF THE PUMPS IN HAND (MANUAL) AND AUTO (CONTROLLED BY PLC). SEE "24VAC REGULATOR SYSTEM" FOR FURTHER INFORMATION.
THE CONTROL SYSTEM FUNCTION AS DESCRIBED BELOW. THE EQUIPMENT LISTED BELOW IS A GUIDE AND DOES NOT RELIEVE THE SUPPLIER FROM PROVIDING A SYSTEM THAT WILL FUNCTION AS REQUIRED.

ENCLOSURE:
THE ENCLOSURE SHALL BE A NEMA 4X RATED STAINLESS STEEL. THE ENCLOSURE SHALL BE A WALL MOUNT TYPE WITH A MINIMUM DEPTH OF 8" SIZED TO ADEQUATELY HOUSE ALL THE COMPONENTS. THE DOOR GASKET SHALL BE RUBBER COMPOSITION WITH A RETAINER TO ASSURE A POSITIVE WEATHERPROOF SEAL. THE DOOR SHALL OPERATE WITH A SINGLE ACTION HANDLE THAT ACCEPTS A 3/8" SHAFT PADLOCK AND OPENS A MINIMUM OF 180 DEGREES.

INNER DEAD FRONT DOOR:
A POLISHED ALUMINUM DEAD FRONT SHALL BE MOUNTED ON A CONTINUOUS AIRCRAFT TYPE HINGE, CONTAIN CUTOUTS FOR MOUNTED EQUIPMENT, AND PROVIDE PROTECTION OF PERSONNEL FROM LIVE INTERNAL WIRING. CUTOUTS FOR BREAKER HANDLES SHALL BE PROVIDED TO ALLOW OPERATION OF BREAKERS WITHOUT ENTERING THE COMPARTMENT. NO DOOR MOUNTED OPERATING MECHANISMS ALLOWED FOR BREAKER OPERATION. ALL CONTROL SWITCHES, INDICATOR PILOT LIGHTS, ONE GENERAL PURPOSE GFI DUPLEX RECEPTACLE AND OTHER OPERATIONAL DEVICES SHALL BE MOUNTED ON THE EXTERNAL SURFACE OF THE DEAD FRONT. THE DEAD FRONT SHALL OPEN A MINIMUM OF 150 DEGREES TO ALLOW ACCESS TO EQUIPMENT FOR MAINTENANCE. A 3/4" BREAK SHALL BE FORMED AROUND THE PERIMETER OF THE DEAD FRONT TO PROVIDE RIGIDITY.

BACK PLATE:
THE BACK PLATE SHALL BE MANUFACTURED OF 12-GAUGE SHEET STEEL AND BE FINISHED WITH A PRIMER COAT AND TWO (2) COATS OF BAKED ON WHITE ENAMEL. ALL DEVICES SHALL BE PERMANENTLY IDENTIFIED.

POWER DISTRIBUTION:
THE PANEL POWER DISTRIBUTION SHALL INCLUDE ALL NECESSARY COMPONENTS AND BE WIRED WITH STRANDED COPPER CONDUCTORS RATED AT A MINIMUM OF 90 DEGREES C.

SYSTEM SHALL BE EQUIPPED WITH AN EMERGENCY GENERATOR WITH AN AUTOMATIC TRANSFER SWITCH/CAPABLE OF PROGRAMMABLE TEST DATES AND TIMES. INPUTS SHALL BE PROVIDED TO PLC TO INDICATE GENERATOR RUNNING, GENERATOR ALARM, AND GENERATOR LOW FUEL LEVEL OR IF NO GENERATOR IS AT THE LIFT STATION, A STAND ALONE MANUAL DOUBLE THROW SAFETY SWITCH TO ALLOW HARD WIRING TO A PORTABLE GENERATOR.

NO DOOR MOUNTED OPERATING MECHANISMS ALLOWED FOR BREAKER OPERATION IN CONTROL PANEL. ALL CONDUCTOR TERMINATIONS SHALL BE AS RECOMMENDED BY THE DEVICE MANUFACTURER.

CIRCUIT BREAKERS:
ALL CIRCUIT BREAKERS SHALL BE HEAVY-DUTY THERMAL MAGNETIC OR MOTOR CIRCUIT PROTECTORS SIMILAR AND EQUAL TO SQUARE D TYPE FAL. EACH MOTOR BREAKER SHALL BE ADEQUATELY SIZED TO MEET THE PUMP MOTOR OPERATING CHARACTERISTICS AND SHALL HAVE A MINIMUM OF 10,000 AMPS INTERRUPTING CAPACITY FOR 230 VAC AND 14,000 AMPS AT 480 VAC. THE CONTROL CIRCUIT AND THE DUPLEX RECEPTACLES SHALL BE INDIVIDUALLY CONTROLLED BY HEAVY-DUTY BREAKERS. CIRCUIT BREAKERS SHALL BE INDICATING TYPE, PROVIDING "ON-OFF-TRIP" POSITIONS OF THE OPERATING HANDLE. WHEN THE BREAKER IS TRIPPED AUTOMATICALLY, THE HANDLE SHALL ASSUME A MIDDLE POSITION INDICATING "TRIP". THERMAL MAGNETIC BREAKERS SHALL BE QUICK-MADE AND QUICK-BREAK ON BOTH MANUAL AND AUTOMATIC OPERATION AND HAVE INVERSE TIME CHARACTERISTICS SECURED THROUGH THE USE OF BIMETALLIC TRIPPING ELEMENTS SUPPLEMENTED BY A MAGNETIC TRIP.

BREAKERS SHALL BE DESIGNED SO THAT AN OVERLOAD ON ONE POLE AUTOMATICALLY TRIPS AND OPENS ALL LEGS. FIELD INSTALLED HANDED TIES SHALL NOT BE ACCEPTABLE.

MOTOR STARTERS:
MOTOR STARTERS SHALL BE OPEN FRAME, ACROSS THE LINE; NEMA RATED WITH INDIVIDUAL OVERLOAD PROTECTION IN EACH LEG. MOTOR STARTER CONTACT AND COIL SHALL BE REPLACEABLE FROM THE FRONT OF THE STARTER WITHOUT BEING REMOVED FROM ITS MOUNTED POSITION. OVERLOAD HEATERS SHALL BE SOLID STATE MOTOR LOGIC TYPE WITH THE FOLLOWING FEATURES: 3 TO 1 ADJUSTMENT FOR TRIP CURRENT; PHASE LOSS AND UNBALANCE PROTECTION; LED POWER INDICATION, AMBIENT INSENSITIVE AND SELF-POWERED, AND SHALL HAVE AVAILABILITY OF ELECTRICAL REMOTE RESET. OVERLOADS SHALL BE SIZED FOR THE FULL LOAD AMPERAGE DRAW OF THE PUMPS. DEFINITE PURPOSE CONTACTORS, FRACTIONAL SIZE STARTERS AND HORSEPOWER RATED CONTACTORS OR RELAYS SHALL NOT BE ACCEPTABLE.

TRANSFORMERS:
CONTROL TRANSFORMERS SHALL PROVIDE THE 120 VAC AND/OR 24 VAC FOR CONTROL CIRCUITS. TRANSFORMERS SHALL BE FUSED ON THE PRIMARY AND SECONDARY CIRCUITS. THE SECONDARY SHALL BE GROUNDED.

LIGHTNING-TRANSIENT PROTECTION:
A LIGHTNING-TRANSIENT PROTECTOR WITH TELL-TALE WARNING LIGHTS ON EACH PHASE TO INDICATE LOSS OF PROTECTION ON THE INDIVIDUAL PHASES SHALL BE PROVIDED. THE DEVICE SHALL BE SOLID STATE WITH A RESPONSE TIME OF LESS THAN 5 NANoseconds WITHSTANDING SURGE CAPACITY OF 6500 AMPERES. UNIT SHALL BE INSTANT RECOVERY, LONG LIFE AND HAVE NO HOLDOVER CURRENTS.

PHASE MONITOR:
A LINE VOLTAGE RATED, ADJUSTABLE PHASE MONITOR SHALL BE INSTALLED TO SENSE LOW VOLTAGE, LOSS OF POWER, REVERSED PHASING AND LOSS OF A PHASE. CONTROL CIRCUIT SHALL DE-ENERGIZE UPON SENSING ANY OF THE FAULTS AND SHALL AUTOMATICALLY RESTORE SERVICE UPON RETURN TO NORMAL POWER.

ALARM SYSTEM:
THE ALARM LIGHT SHALL BE A WEATHERPROOF, SHATTERPROOF, RED LIGHT FIXTURE WITH 500 LUMENS MINIMUM TO INDICATE ALARM CONDITIONS. THE ALARM LIGHT SHALL BE TURNED ON BY THE ALARM LEVEL.

THE ALARM LIGHT SHALL BE MOUNTED ON THE EXTERIOR OF THE CABINET. THE ALARM HORN SHALL PROVIDE AN AUDIO SIGNAL OF NOT LESS THAN 90 DB AT 10 FEET. AN ALARM SILENCE SWITCH SHALL BE MOUNTED ON THE EXTERIOR OF THE CABINET AND DEACTIVATE THE ALARM HORN; HOWEVER, THE ALARM LIGHT SHALL FLASH UNTIL THE ALARM CONDITION CEASES TO EXIST. AN INPUT SHALL BE PROVIDED TO PLC TO INDICATE HIGH WET WELL CONDITION.

24 VAC REGULATOR SYSTEM:

SCADA:
EQUIPMENT FOR SCADA SHALL BE KIMARK PART # TR-Y160-C50-P-1C CONSISTING OF A PLC, RADIO, ANTENNA, ECT. TOOPERATE THE SYSTEM.
CONTROL CABINET COMPONENTS SHALL BE INSTALLED WHEN THE PANEL IS BUILT.

CONTACT PHONE NUMBER FOR KIMARK IS 972-890-7910 SAUL SANCHEZ.
EMAIL: SAUL@KIMARK.COM
CONTACT THEM FOR PRICING AND EQUIPMENT SPECIFICATIONS FOR INSTALLATION IN THE CONTROL PANEL AND ON THE RACK.

PROGRAMMING SHALL BE INCLUDED IN PURCHASE PRICE OF THE ABOVE PART BY KIMARK, USING SCHNEIDER ELECTRIC PROWORX32 PLC PROGRAMMING SOFTWARE. CHECK WITH KIMARK TO VERIFY ALL NEEDED INPUTS AND OUTPUTS FOR PLC PROGRAMMING.

THE CONTROL SYSTEM SHALL PROVIDE FOR BOTH AUTOMATIC AND MANUAL CONTROL AND ALTERNATION OF THE PUMPS TO MAINTAIN A PUMPED DOWN CONDITION OF THE WET WELL.

* WET WELL LEVELS SHALL BE SENSED BY A PRESSURE TRANSDUCER. FLOAT REGULATORS SHALL BE INSTALLED AS BACK UP FOR HIGH AND LOW LEVELS ONLY. THE TRANSDUCER SHALL SENSE THE "OFF", "LEAD", "LAG", AND "HIGH" LEVELS AS GIVEN ON THE PLANS. AS THE LEVEL IN THE WET WELL RAISES THE LEAD PUMP, AS DETERMINED BY THE ALTERNATOR, SHALL START AND PUMP THE STATION TO THE "OFF" POSITION. IN THE EVENT THE INCOMING FLOW EXCEEDS THE CAPACITY OF THE LEAD PUMP, THE LAG PUMP SHALL START AND BOTH PUMPS SHALL RUN TO THE OFF LEVEL. IF THE WET WELL LEVEL CONTINUES TO RISE, HIGH WELL ALARM FUNCTIONS SHALL BE ACTIVATED. THE ALTERNATOR SHALL SWITCH WHEN THE OFF LEVEL IS REACHED.

ALL INPUTS AND OUTPUTS SHALL BE WIRED TO A TERMINAL STRIP AT BOTTOM OF CABINET.

ANCILLARY EQUIPMENT:

HOA SWITCHES: A THREE POSITION HOA SWITCH SHALL BE PROVIDED ON THE INNER DEAD FRONT FOR EACH PUMP. INPUTS SHALL BE PROVIDED TO PLC TO INDICATE POSITION OF HOA.

RUN INDICATORS: A RUN PILOT INDICATOR SHALL BE PROVIDED ON THE INNER DEAD FRONT. ALL INDICATOR LIGHTS SHALL BE PUSH TO TEST. INPUTS SHALL BE PROVIDED TO PLC TO INDICATE PUMP RUNNING.

ELAPSED TIME: ELAPSE TIME METER SHALL BE MOUNTED ON THE DEAD FRONT DOOR.

CABINET TEMPERATURE CONTROL: THE CABINET SHALL BE EQUIPPED WITH A PANEL HEATER CONTROLLED BY A THERMOSTAT AND A VENT FAN CONTROLLED BY A THERMOSTAT.

RECEPTACLES: ONE DUPLEX RECEPTACLE LOCATED ON INNER DEAD FRONT DOOR FOR GENERAL PURPOSE USE. THIS RECEPTACLE SHALL BE OF THE GROUND FAULT TYPE, 120VOLT, AND PROTECTED BY A 20 AMP BREAKER. A SECOND SINGLE RECEPTACLE SHALL BE LOCATED ON THE BACK PANEL TO PROVIDE POWER FOR UPS BACK UP SYSTEM. THIS RECEPTACLE SHALL BE 120 VOLT AND PROTECTED BY A SEPARATE 20 AMP BREAKER.

UPS BACK UP SYSTEM: WILL PROVIDED 120 VOLT POWER TO SCADA COMMUNICATION EQUIPMENT AND ALL LOW VOLTAGE POWER TRANSFORMERS. THIS MUST BE INSTALLED IN THE CONTROL PANEL. UPS SHALL BE APC 650VA 120 VOLTOR EQUIVALENT.

THE SYSTEM MUST BE ABLE TO TRANSMIT ALL ALARMS AND WET WELL LEVELS WHEN ON BACKUP POWER.

MOTOR PROTECTION: A CONTROL AND STATUS MODULE SHALL SENSE EITHER MOTOR OVER TEMPERATURE OR SEAL LEAKAGE, AND SHALL TURN OFF THE PUMP, LOCK OUT THE PUMP, AND SEND AN ALARM. INPUTS SHALL BE PROVIDED TO PLC TO INDICATE PUMP FAIL, SEAL FAIL AND TEMP FAIL INDIVIDUALLY FOR EACH PUMP.

MISCELLANEOUS:

PANEL RACKS:
POSTS SUPPORTING RACKS SHALL BE 3" MINIMUM RIGID CONDUIT CAPPED AND BOLTED DIRECTLY TO CHANNEL FRAMEWORK SUPPORTING THE PANELS.

PANELS SHALL HAVE A "RAIN SHIELD" STRUCTURE USING 1/4" MINIMUM ALUMINUM PLATING PROVIDING A SOLID BACKPLATE BEHIND PANELS CONTINUOUS TO OVERHEAD PLATE TO PROTECT PANEL FROM RAIN. PROVIDE LIGHTING MOUNTED ON STRUCTURE WITH SWITCH MOUNTED ON EXTERIOR OF PANEL TO LIGHT UP PANEL AREA.
CONTACT CITY OF ROCKWALL AT 972-771-7730 FOR LOCATION OF EXISTING TYPE STRUCTURE.

EACH PUMP MUST HAVE ITS OWN CONDUIT FOR POWER CORD AND A SEPARATE CONDUIT FOR ALL FLOAT WIRES.

WET WELLS:
WET WELL SHALL HAVE METAL SAFETY GRATES.

ALL HATCHES SHALL HAVE ACCOMMODATIONS FOR LOCKING ABOVE GRADE WITH 3/8" SHAFT PADLOCKS PROVIDED BY THE CITY.

CHECK VALVES SHALL BE OF THE SPRING TYPE.

LEVEL CONTROL SYSTEM SHALL USE A PRESSURE TRANSDUCER WITH BUILT IN SURGE PROTECTION FOR PUMP OPERATION WITH OFF AND HIGH LEVEL FLOATS AS BACK-UP IN CASE TRANSDUCER FAILS.

DRAWINGS: CONTROL PANEL SCHEMATIC DRAWINGS SHALL BE SUBMITTED FOR APPROVAL WITH THE SUBMITTAL PLANS.
FINAL CONTROL PANEL WIRE SCHEMATIC DRAWINGS INCLUDING A LIST OF ALL LEGENDS (2 SETS TOTAL) SHALL BE PROVIDED. ONE SET SHALL BE ENCAPSULATED IN MYLAR AND ATTACHED TO THE INSIDE OF THE FRONT DOOR OF THE CONTROL CABINET. A SECOND SET SHALL BE DELIVERED TO THE CITY OF ROCKWALL WASTEWATER DEPARTMENT.

PANEL MARKINGS: ALL COMPONENT PARTS IN THE CONTROL PANEL SHALL BE PERMANENTLY MARKED AND IDENTIFIED AS THEY ARE INDICATED ON THE DRAWING. MARKING SHALL BE ON THE BACK PLATE ADJACENT TO THE COMPONENT. ALL CONTROL CONDUCTORS SHALL BE IDENTIFIED WITH WIRE MARKERS AS CLOSE AS PRACTICAL TO EACH END OF CONDUCTORS.

PANEL WIRING: ALL WIRING IN PANEL SHALL MAINTAIN A MINIMUM OF 11/2" SPACING BETWEEN COMPONENTS AND WIRE WAYS.

TESTING: ALL PANELS SHALL BE TESTED TO THE POWER REQUIREMENTS AS SHOWN ON THE PLANS TO ASSURE PROPER OPERATION OF ALL THE COMPONENTS. EACH CONTROL FUNCTION SHALL BE ACTIVATED TO CHECK FOR PROPER OPERATION AND INDICATION.

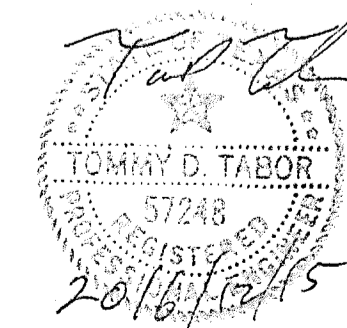
GUARANTEE: ALL EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF THREE (3) YEARS FROM DATE OF ACCEPTANCE. THE GUARANTEE IS EFFECTIVE AGAINST ALL DEFECTS IN WORKMANSHIP AND/OR DEFECTIVE COMPONENTS. THE WARRANTY IS LIMITED TO REPLACEMENT OR REPAIR OF THE DEFECTIVE EQUIPMENT.

<p>APPLICABLE CODES AND STANDARDS</p> <p>NFPA 820 2008 NATIONAL ELECTRICAL CODE TCEQ CHAPTER 217</p>
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<p>CITY REQUIRE INSTRUCTIONS TO CONTRACTOR</p> <p>SCADA CONNECTION TO OWNER'S SYSTEM. ALL PROGRAMMING SHALL COMPLY WITH OWNER'S REQUIREMENTS. SEE CITY SPECIFICATIONS FOR SCADA REQUIREMENTS. PLC & RADIO EQUIPMENT PURCHASED THROUGH KIMARK AND INSTALLED IN CONTROL CABINET.</p>
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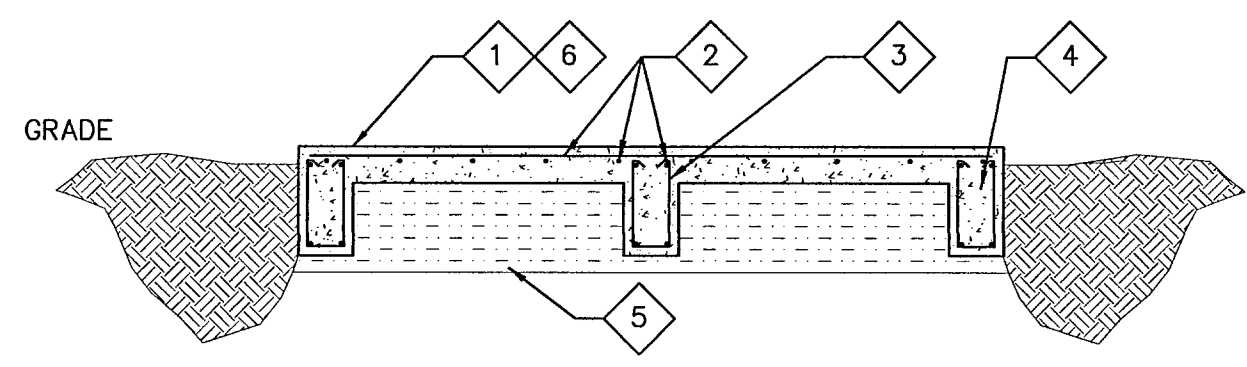
<p>CITY REQUIRED INSTRUCTIONS TO CONTRACTOR</p> <p>SCADA CONNECTION TO OWNER'S SYSTEM. ALL PROGRAMMING SHALL COMPLY WITH OWNER'S REQUIREMENTS. SEE CITY SPECIFICATIONS FOR SCADA REQUIREMENTS.</p>
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AS-BUILT JULY 2018
INFORMATION
PROVIDED
BY CONTRACTORS
(NOT FIELD VERIFIED)



1 2017/02/14 CITY COMMENTS

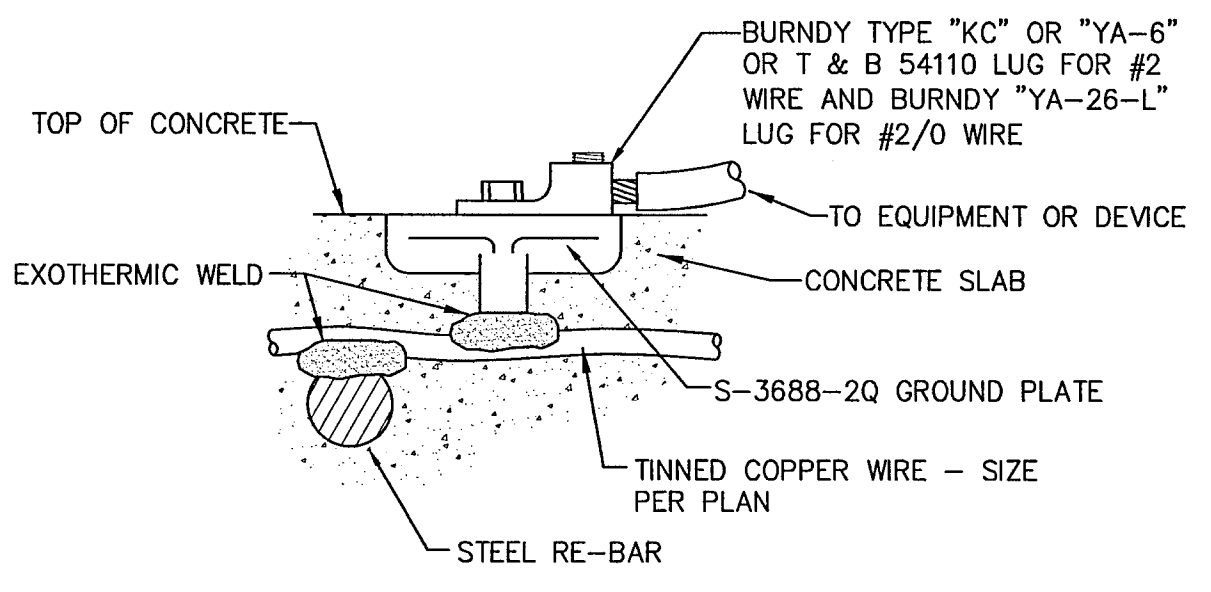
<p>PERKINS ENGINEERING CONSULTANTS, INC. TBPE REGISTRATION NO. F-8899</p>		<p>BRAZOS ENVIRONMENTAL and ENGINEERING SERVICES, INC. (Firm # 639)</p>	
<p>DEVELOPMENT PLANS FOR SENEY DRIVE LIFT STATION ROCKWALL, TEXAS</p>			
<p>ELECTRICAL GENERAL NOTES</p>			
<p>DRAWN BY CAC</p>	<p>DESIGNED BY TDT</p>	<p>CHECKED BY</p>	<p>SHEET NO. LSE - 1</p>
<p>JOB NUMBER SKO 16-001</p>	<p>DATE 2016-12-15</p>	<p>SCALE NOTED</p>	<p>16-035-D</p>



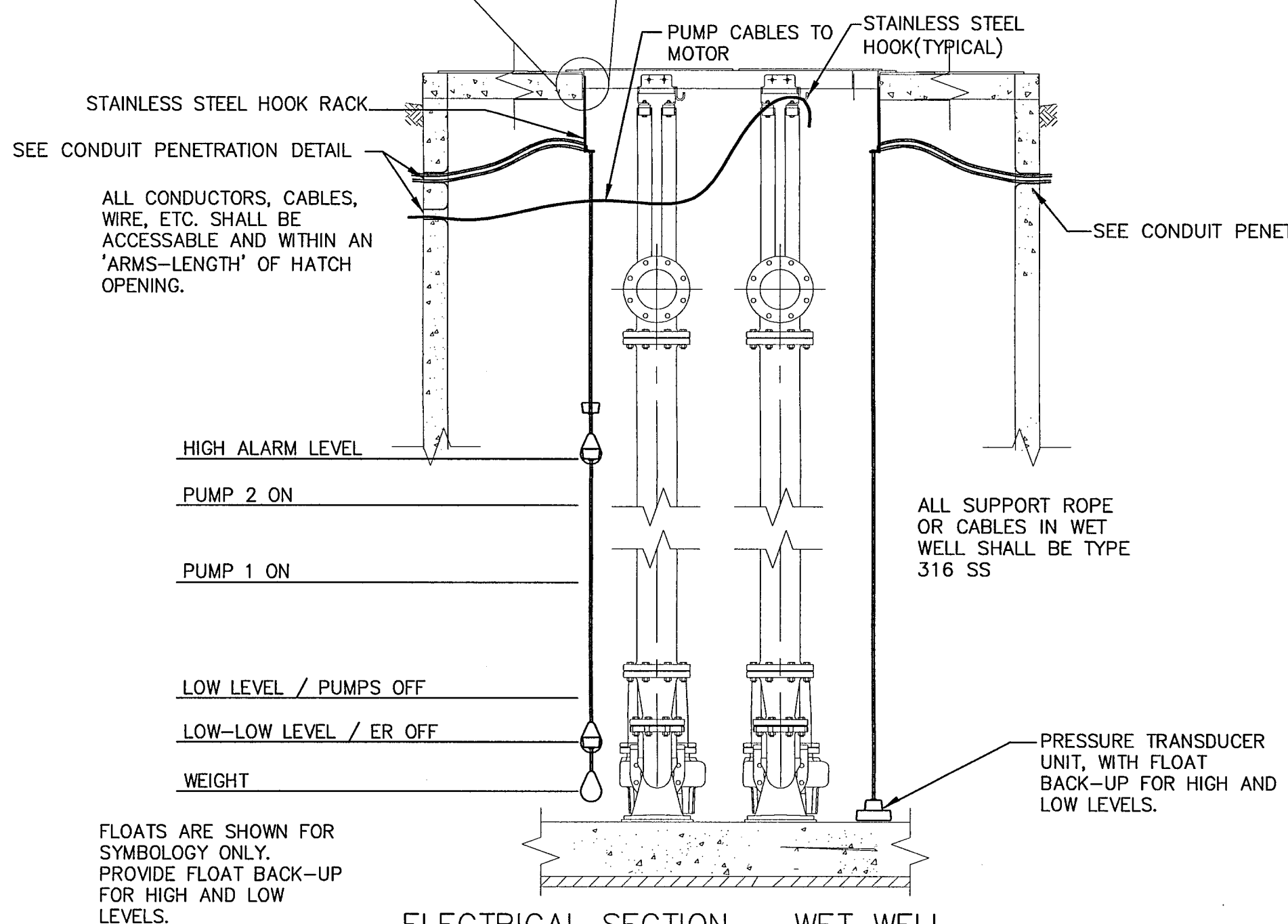
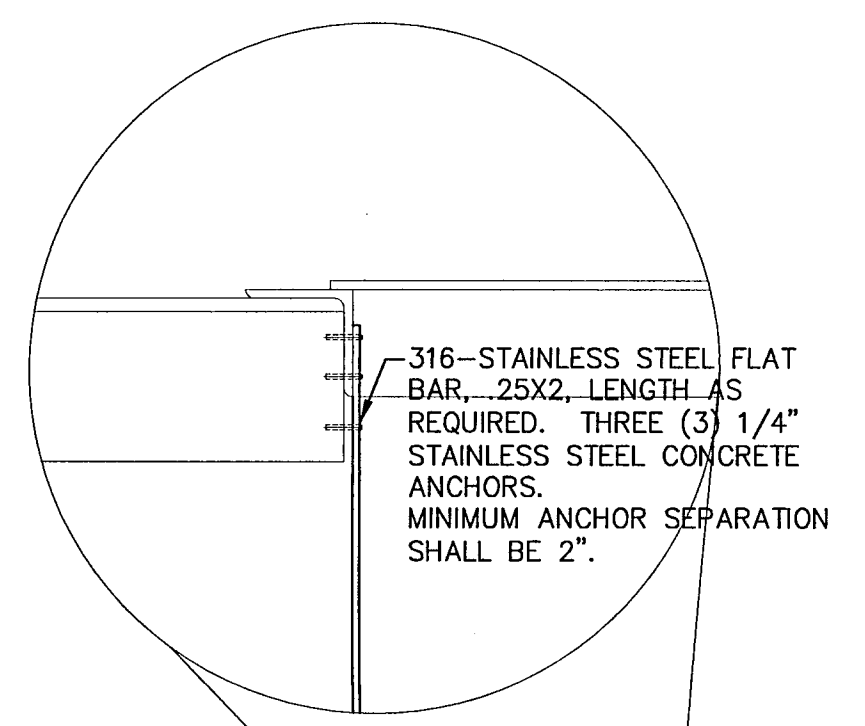
5 GENERATOR FOUNDATION
NO SCALE

FOUNDATION NOTES "◇"
BY SYMBOL

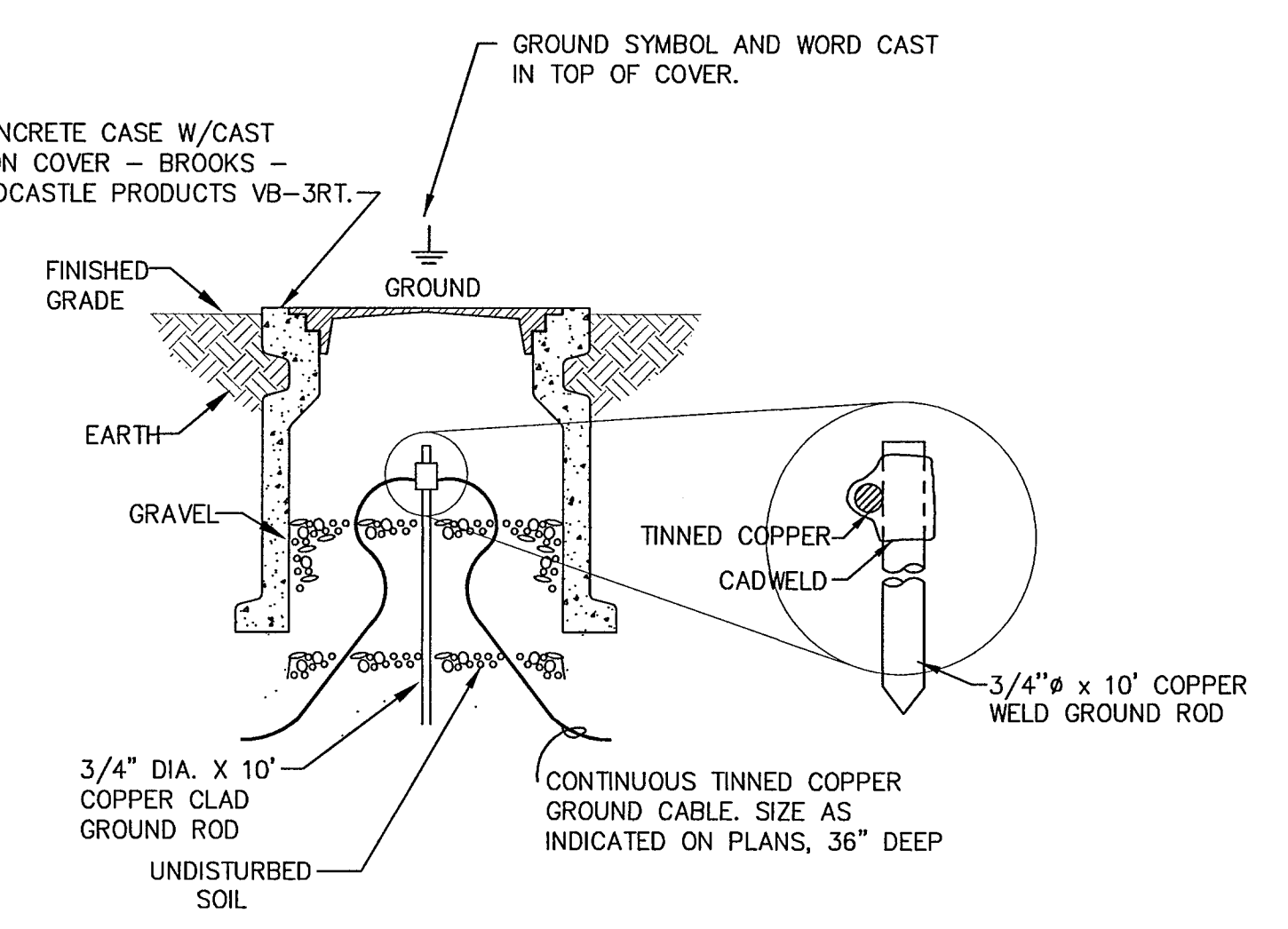
- ◇ 1 9" CONCRETE FOUNDATION, CONCRETE 4,000 PSI @ 28 DAYS MINIMUM 6.5 SACK MIX(10'-6" X 5'-6").
- ◇ 2 #4 RE-BAR, FOR BEAMS AND GRID. GRID SPACING 12" C-C-E-W.
- ◇ 3 #3 RE-BAR STURRUP.
- ◇ 4 BEAM DIMENSION 9" WIDE, 18" DEEP.
- ◇ 5 18" SELECT FILL, MECHANICALLY COMPACTED TO 95%
- ◇ 6 TOP OF CONCRETE TO BE 6" ABOVE ADJACENT GRADE.



4 BONDING AT SLAB DETAIL
NO SCALE



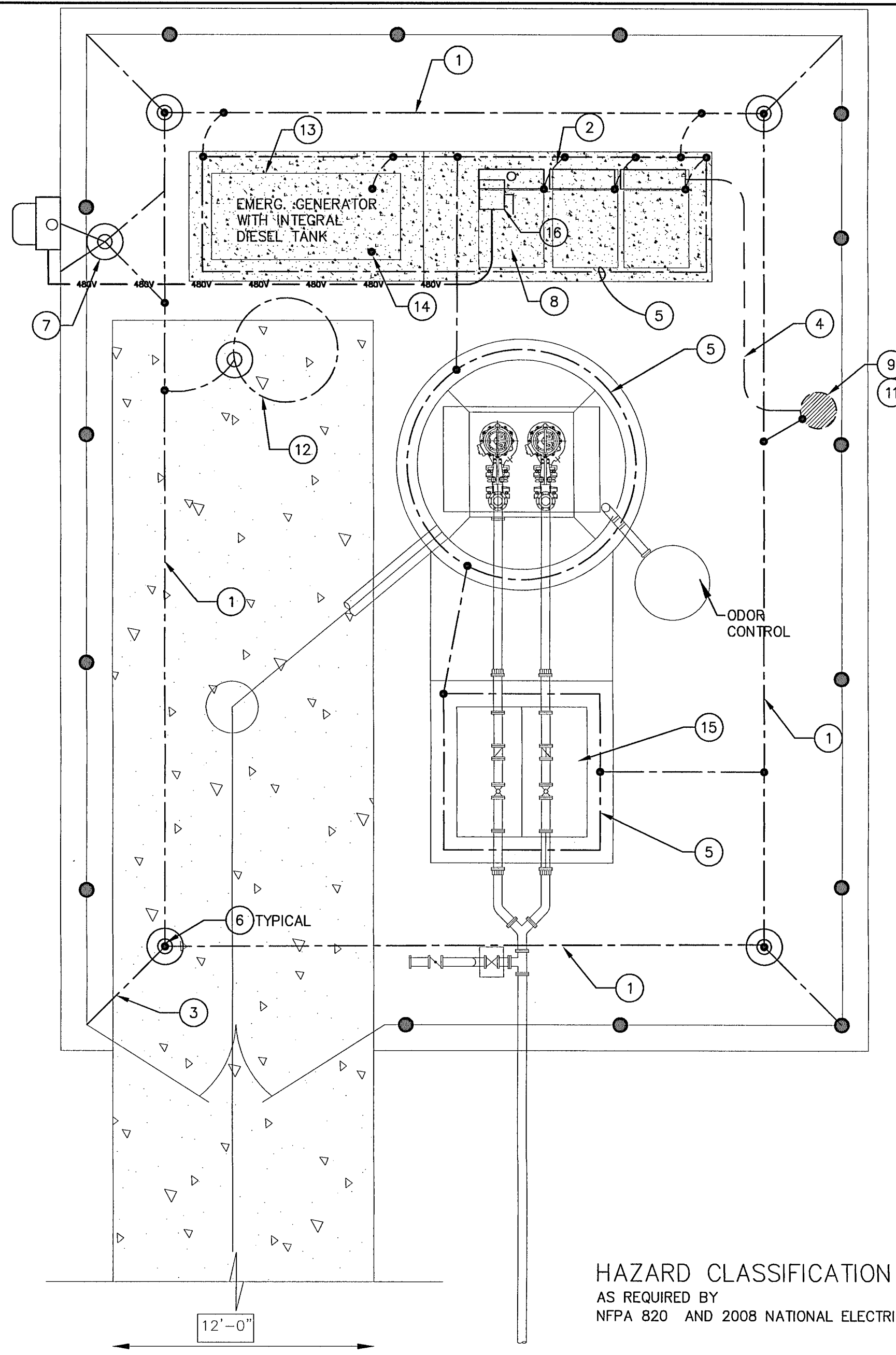
2 ELECTRICAL SECTION - WET WELL
NO SCALE



3 GROUND ROD & WELL DETAIL
NO SCALE

GROUNDING NOTES BY SYMBOL "○"

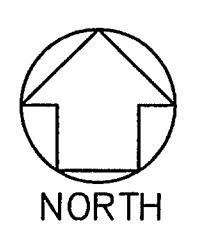
- 1 1/0 TINNED COPPER, 36" DEEP LOOP, AT 36" FROM EDGE OF CONSTRUCTION OR FENCE.
- 2 #4 TINNED COPPER BONDING FOR ALL ELECTRICAL EQUIPMENT DEVICES AND GROUND SYSTEM.
- 3 #4 TINNED COPPER BONDING/GROUNDING SYSTEM TO FENCE.
- 4 UNDER GROUND ELECTRICAL FROM "SCADA" PANEL TO ANTENNA
- 5 1/0 TINNED COPPER IN CONCRETE STRUCTURES.
- 6 3/4" x 10'-0" COPPER CLAD GROUND ROD AND WELL.
- 7 "GEC"
- 8 NEW UNDERGROUND ELECTRICAL SERVICE TO CONTROL PANEL THIS AREA. REFER TO ELECTRICAL SITE PLAN.
- 9 RHON ANTENNA 30 FT, SELF-SUPPORTING, WITH ANTI-CLIMB, GROUNDING KITS FOR ALL ELECTRICAL SYSTEMS, (LIGHTNING PROTECTION, ANTENNA, COAX) OR APPROVED EQUAL.
- 10 NOT USED (POTABLE WATER DELETED BY CLIENT)
- 11 COORDINATE EXACT LOCATION OF ANTENNA BASED ON ACTUAL FIELD CONDITION. LOCATION SHALL BE APPROVED BY SCADA PROVIDER, CITY OF ROCKWALL AND ENGINEER.
- 12 10FT DIAMETER COIL OF 1/0 BARE COPPER. PROVIDE XYZ COORDINATES ON RECORD DRAWINGS. COORDINATE EXACT LOCATION WITH OWNER.
- 13 CONCRETE PAD FOR GENERATOR, COORDINATE EXACT LOCATION WITH ALL TRADES. MAINTAIN REQUIRED CLEARANCE.
- 14 J-BOX FOR GENERATOR
- 15 J-BOX FOR VALVE VAULT FAN
- 16 COORDINATE EXACT LOCATION OF DISCONNECT WITH CITY OF ROCKWALL



PUMP CONTROL PANEL, ATS AND MINI POWER ZONE ON CONC. PAD. - (5FT X 17FT)

HAZARD CLASSIFICATION AS REQUIRED BY NFPA 820 AND 2008 NATIONAL ELECTRICAL CODE

1 SITE ELECTRICAL PLAN
SCALE: 1"=4'
FOR DIAGRAMMATIC REPRESENTATION ONLY
COORDINATE EXACT LOCATION OF EQUIPMENT WITH CIVIL PLAN.



- KEY**
- = GROUND ROD & WELL LOCATION PER DETAILS
 - = CONNECTION PER DETAILS

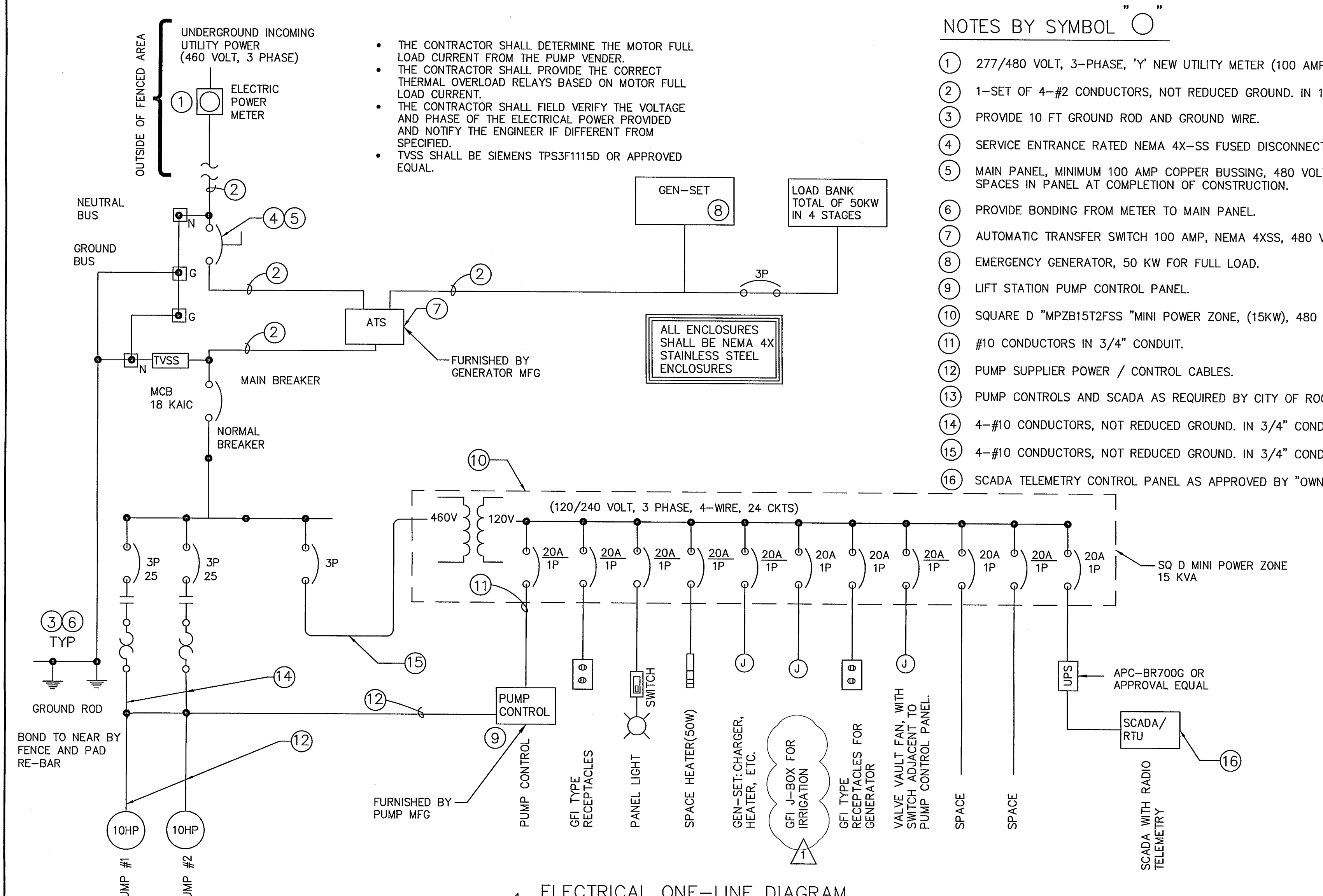
AS-BUILT JULY 2018
INFORMATION PROVIDED BY CONTRACTORS (NOT FIELD VERIFIED)

1 2017/02/14 CITY COMMENTS

<p>PERKINS ENGINEERING CONSULTANTS, INC. TBPE REGISTRATION NO. F-8699</p>		<p>BRAZOS ENVIRONMENTAL and ENGINEERING SERVICES, INC. (Firm # 839)</p>	
<p>DEVELOPMENT PLANS FOR SENEY DRIVE LIFT STATION ROCKWALL, TEXAS</p>			
<p>ELECTRICAL SITE PLAN & DETAILS</p>			
<p>DRAWN BY CAC</p>	<p>DESIGNED BY TDT</p>	<p>CHECKED BY</p>	<p>SHEET NO. LSE - 2</p>
<p>JOB NUMBER SKO 16-001</p>	<p>DATE 2016-12-15</p>	<p>SCALE NOTED</p>	
<p>16-035-D</p>			

BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

ONE INCH



NOTES BY SYMBOL "O"

- ① 277/480 VOLT, 3-PHASE, "Y" NEW UTILITY METER (100 AMP).
- ② 1-SET OF 4-#2 CONDUCTORS, NOT REDUCED GROUND. IN 1-1/2" CONDUIT.
- ③ PROVIDE 10 FT GROUND ROD AND GROUND WIRE.
- ④ SERVICE ENTRANCE RATED NEMA 4X-SS FUSED DISCONNECT (100 AMP MINIMUM 480 VOLT, 3-PHASE).
- ⑤ MAIN PANEL, MINIMUM 100 AMP COPPER BUSSING, 480 VOLT, 3-PHASE, WITH MINIMUM OF 2-3POLE UNUSED SPACES IN PANEL AT COMPLETION OF CONSTRUCTION.
- ⑥ PROVIDE BONDING FROM METER TO MAIN PANEL.
- ⑦ AUTOMATIC TRANSFER SWITCH 100 AMP, NEMA 4XSS, 480 VOLT OR APPROVED EQUAL.
- ⑧ EMERGENCY GENERATOR, 50 KW FOR FULL LOAD.
- ⑨ LIFT STATION PUMP CONTROL PANEL.
- ⑩ SQUARE D "MP2B15T2FSS" MINI POWER ZONE, (15KW), 480 TO 120/208, 316 SS.
- ⑪ #10 CONDUCTORS IN 3/4" CONDUIT.
- ⑫ PUMP SUPPLIER POWER / CONTROL CABLES.
- ⑬ PUMP CONTROLS AND SCADA AS REQUIRED BY CITY OF ROCKWALL LIFT STATION REQUIREMENTS.
- ⑭ 4-#10 CONDUCTORS, NOT REDUCED GROUND. IN 3/4" CONDUIT.
- ⑮ 4-#10 CONDUCTORS, NOT REDUCED GROUND. IN 3/4" CONDUIT.
- ⑯ SCADA TELEMETRY CONTROL PANEL AS APPROVED BY "OWNER"

Fault Current Calculations
ROCKWALL SENEY DRIVE LS
Initial Fault Current

First element	Transformer	150				
	Source Line-Line Voltage	25,000	0.0000			
	Load Line-Line Voltage	480	0.0192			
	Phase (1 or 3)	3				
	Impedance (2%)	1.25	14,434	14,434		
	VOLTAGE					
	AIC	Source	Load	Phase	Impedance	KVA
AT UTILITY TRANSFORMER	14,434	25,000	480	3	1	150

	LINE					
Conductor	#2	Largest anticipated service conductors				
Length	40	Ft	Code	3		
Voltage	208	L-L	Wire-Factor	0.4977	4,830	
Phase	3					
Conduct/Phase	2					
Conduit/Cable	NON-Magnetic conduit					
	Single					
	AT SERVICE DISCONNECT					
AIC	Conductor	Length	Voltage	Phase	Conduct/Phase	Conduit
9,637	#2	40	208	3	2	NON-Magnetic conduit
						Single

2 FAULT CURRENT

Stationary Standby Industrial Generator Set
Extended Five-Year or Three Thousand (3000)-Hour
Comprehensive Limited Warranty

Your Kohler product has been manufactured and inspected with care by experienced craftsmen. If you are the original end user, Kohler Co. warrants, for the period indicated below, each product to be free from defects in materials and workmanship. In the event of a defect in materials or workmanship, Kohler Co. will repair, replace, or make appropriate adjustment at Kohler Co.'s option if the product, upon Kohler Co.'s inspection, is found to be properly installed, maintained, and operated in accordance with Kohler Co.'s instruction manuals. A Kohler distributor, dealer, or authorized service representative must perform start-up.

Kohler Product Stationary Standby Generator Set & Accessories
Warranty Coverage Five (5) years from registered startup or three thousand (3000) hours (whichever occurs first).

This warranty is not effective unless a proper extended warranty registration form and warranty fee have been sent to Kohler Co. within one year of registered startup. The extended warranty start date is determined by the standard warranty requirements and runs concurrent with the standard warranty during the first year. To receive extended warranty coverage, the provisions of the standard warranty registration must be met.

- The following will not be covered by the warranty:
- Normal engine wear, routine tune-ups, lube-oil parts, adjustments, and periodic service.
 - Damage caused by accidents, improper installation or handling, faulty repairs not performed by an authorized Kohler service representative, or improper storage.
 - Damage caused by operation with improper fuel or at speeds, loads, conditions, modifications, or installation contrary to published specifications or recommendations.
 - Damage caused by negligent maintenance such as:
 - Failure to provide the specified type and sufficient quantity of lubricating oil.
 - Failure to keep the air intake and cooling fin areas clean.
 - Failure to service the air cleaner.
 - Failure to provide sufficient coolant and/or cooling air.
 - Failure to perform scheduled maintenance as prescribed in supplied manuals.
 - Failure to regularly exercise the generator set under load (stationary applications only).
 - Original installation charges and startup costs.
 - Starting batteries and the following related expenses:
 - Labor charges related to battery service.
 - Travel expense related to battery service.
 - Engine coolant heaters, heater controls, and circulating pumps after the first year.
 - Additional expenses for repair after normal business hours, i.e. overtime or holiday labor rates.
 - Rental of equipment during performance of warranty repairs.
 - Removal and replacement of non-Kohler-supplied options and equipment.
 - Replacement of a failed Kohler part with a non-Kohler part voids the warranty on that part.
 - Fuel injection pumps not repaired by an authorized Kohler service representative.
 - Non-Kohler-authorized repair shop labor without prior approval from Kohler Co. Warranty Department.
 - Engine fluids such as fuel, oil, or coolant/antifreeze.
 - Shop supplies such as adhesives, cleaning solvents, and rags.
 - Expenses incurred investigating performance complaints unless the problem is caused by defective Kohler materials or workmanship.
 - Maintenance items such as fuses, lamps, filters, spark plugs, loose or leaking clamps, and adjustments.
 - Travel time and mileage exceeding 300 miles round trip.

To obtain warranty service, call 1-800-544-2444 for your nearest authorized Kohler service representative or write Kohler Co., Kohler Power Systems Service Department, MS072, Kohler, WI 53044 USA.

KOHLER CO. SHALL NOT BE LIABLE FOR SPECIAL, INCIDENTAL, AND/OR CONSEQUENTIAL DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, INCIDENTAL AND/OR CONSEQUENTIAL LABOR COSTS, INSTALLATION CHARGES, TELEPHONE CHARGES, OR TRANSPORTATION CHARGES IN CONNECTION WITH THE REPLACEMENT OR REPAIR OF DEFECTIVE PARTS.

This is our exclusive written warranty. We make no other express warranty nor is anyone authorized to make any on our behalf.

ANY IMPLIED OR STATUTORY WARRANTY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IS EXPRESSLY LIMITED TO THE DURATION OF THIS WARRANTY. Some states do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of incidental and/or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.



KOHLER CO., Kohler, Wisconsin 53044
Phone 920-457-4441, Fax 920-469-1646
For the nearest sales/service outlet in the US and Canada, phone 1-800-544-2444
KOHLERPOWER.com TP-5581 9/15d

QuickSize
Generator Load Profile

Project Rockwall SENEY DRIVE Lift Station INITIAL 2-10Hp
Customer
Generator Set Model No. 50REOZJB Gensets 1
Engine 4045TF150 (Diesel)
Alternator 4P8W

Qty	Run kW	Run kVA	Run pF	Start kW	Start kVA	Volt Dip	Freq	Volt (L-N) THD
Step #1 Load Step #1								
MISC (15.00 kW misc. load)	15.00	15.00	1.00	15.00	15.00			
Step Totals	15.00	15.00	1.00	15.00	15.00	2.61	0.33	0.0%/0.0%/0.0%
Cum. Totals	15.00	15.00	1.00					
Step #2 Load Step #2								
Pump #1 (10.00 HP, 3 phase, code H, unloaded motor, w/ A.T.L. starting)	8.70	10.70	0.81	20.90	67.00			
Step Totals	8.70	10.70	0.81	20.90	67.00	11.47	0.63	0.0%/0.0%/0.0%
Cum. Totals	23.70	25.70	0.92					
Step #3 Load Step #3								
Pump #2 (10.00 HP, 3 phase, code H, unloaded motor, w/ A.T.L. starting)	8.70	10.70	0.81	20.90	67.00			
Step Totals	8.70	10.70	0.81	20.90	67.00	11.58	0.63	0.0%/0.0%/0.0%
Cum. Totals	32.40	36.40	0.89					
Grand Totals	32.40	36.40	0.89					0.0%/0.0%/0.0%

*Frequency dip calculation based on estimated data.

EMERGENCY GENERATOR SHALL BE KOHLER 50RZGB OR "ROCKWALL" APPROVED EQUAL.

1. ENGINE - DIESEL
2. ALTERNATOR - 4P8
3. VOLTAGE STARTERS
4. WEATHER ENCLOSURE
5. QUIET-RUN EXHAUST SYSTEM
6. ALTERNATOR PROTECTION
7. BATTERY RACK & CABLES
8. EMISSION COMPLIANT ENGINE
9. INTEGRATED VIBRATION ISOLATION
10. OIL DRAIN EXTENSION-
11. BATTERY AND BATTERY CHARGER
12. AIR CLEANER, HEAVY DUTY
13. VOLTAGE REGULATION 1%
14. VOLTAGE REGULATOR SENSING, 3-PHASE
15. GENERAL MAINTENANCE KIT (FILTER SET)
16. COMMON FAILURE RELAY KIT
17. ALARM FAULT SYSTEM CONNECTED TO AUTO-DIALER/SCADA

18. AUTOMATIC TRANSFER SWITCH AND RELATED ITEMS FOR A COMPLETE OPERATING SYSTEM IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS AND CODES (KOHLER OR APPROVED EQUAL)
19. FURNISH AND INSTALL AUTOMATIC EXERCISE TIMER THAT WILL START THE GENERATOR AND PICK UP THE STATION LOAD DURING THE EXERCISE PERIOD.
20. PRIOR TO "OWNER" ACCEPTANCE OF THE THE GENERATOR, A LOAD BANK TEST SHALL BE PERFORMED ON THE GENERATOR SYSTEM. LOAD SHALL BE NOT LESS THAN PROJECTED PUMP MOTOR LOADINGS.
21. FIVE YEAR COMPREHENSIVE WARRANTY FOR LABOR AND PARTS.

FOR DIESEL ENGINES PROVIDE: BLOCK HEATER AND DAY TANK (MINIMUM 24 HR FULL LOAD RUN TIME) WITH DOUBLE CONTAINMENT SYSTEM.

AS-BUILT JULY 2018
INFORMATION
PROVIDED
BY CONTRACTORS
(NOT FIELD VERIFIED)

2017/02/14 CITY COMMENTS

QuickSize
Generator Set Sizing

Project Rockwall SENEY DRIVE Lift Station INITIAL 2-10Hp
Customer

Generator Set Model No. 50REOZJB Gensets 1
Engine 4045TF150 (Diesel)
Alternator 4P8W

Performance Summary

LN / LL Voltage	277/480	volts	Altitude	500	feet
Frequency	60	hertz	Ambient Temp.	105	F
Phase(s)	3	phase			
Genset Rating @ 130C Rise	55.00 kW				
Genset Derated Rating	54.97 kW				
Total Running Power	32.40 kW				
Percent of Available kW Used	58.94 %				
Alternator Starting kVA	121.14 kVA @ 20% dip				
Peak Starting kVA	82.91 kVA				
Maximum Voltage Dip	11.58 %				
Maximum Frequency Dip	0.63 % (20% allowed)				
Voltage THD	0.00 % (10% allowed)				

Informational

BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.
ONE INCH

PERKINS ENGINEERING CONSULTANTS, INC. TEP# REGISTRATION NO. F-8699

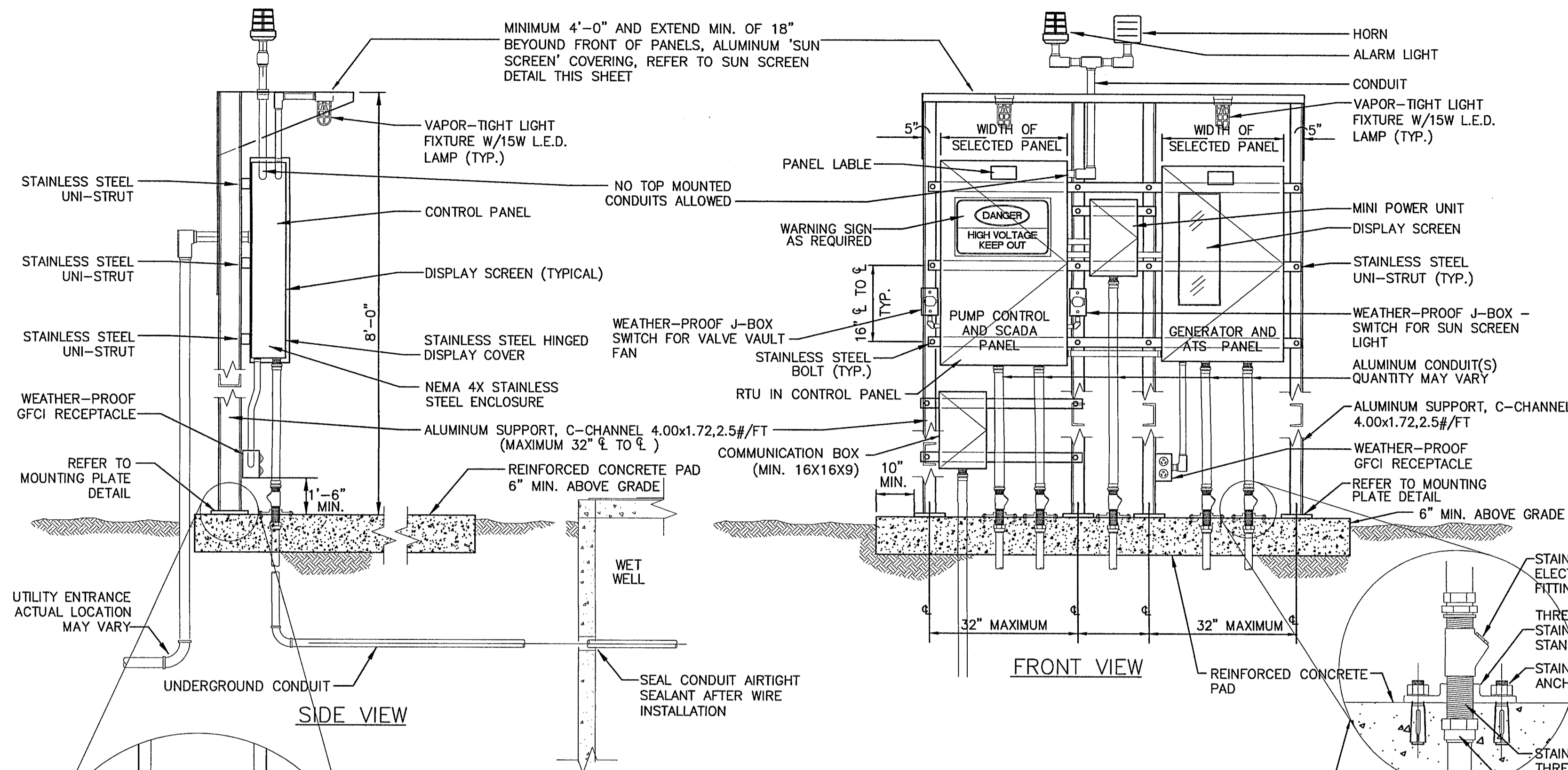
BRAZOS ENVIRONMENTAL and ENGINEERING SERVICES, INC. (Firm # 839)

DEVELOPMENT PLANS FOR
SENEY DRIVE LIFT STATION
ROCKWALL, TEXAS

ELECTRICAL ONE-LINE & DETAILS

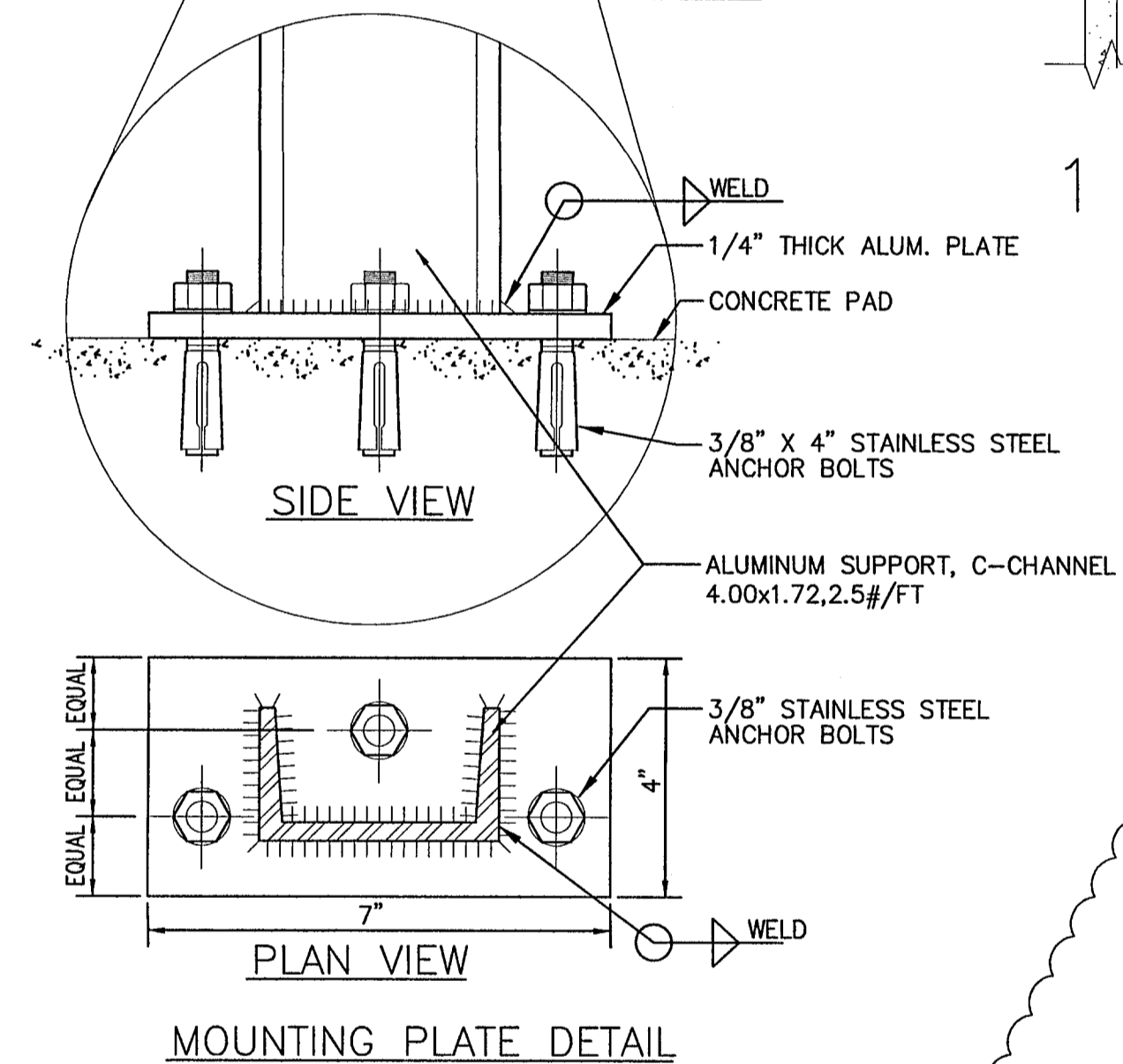
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JOB NUMBER SKO 16-001	DATE 2016-12-15	SCALE NOTED	

16-035-D

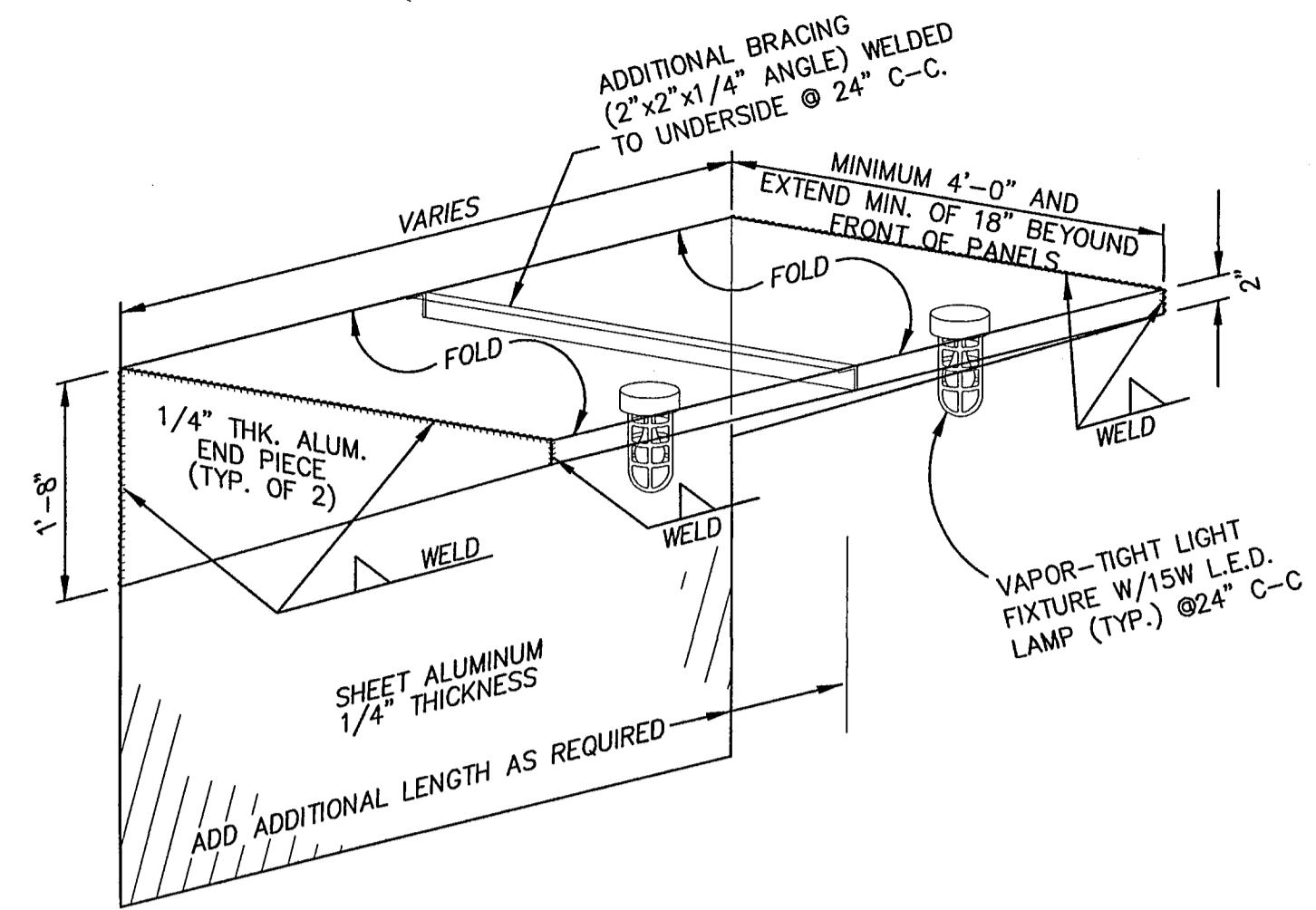


1 CONTROL PANEL MOUNTING WITH SUN SCREEN DETAIL
NO SCALE
DISPLAY SHALL FACE SOUTH

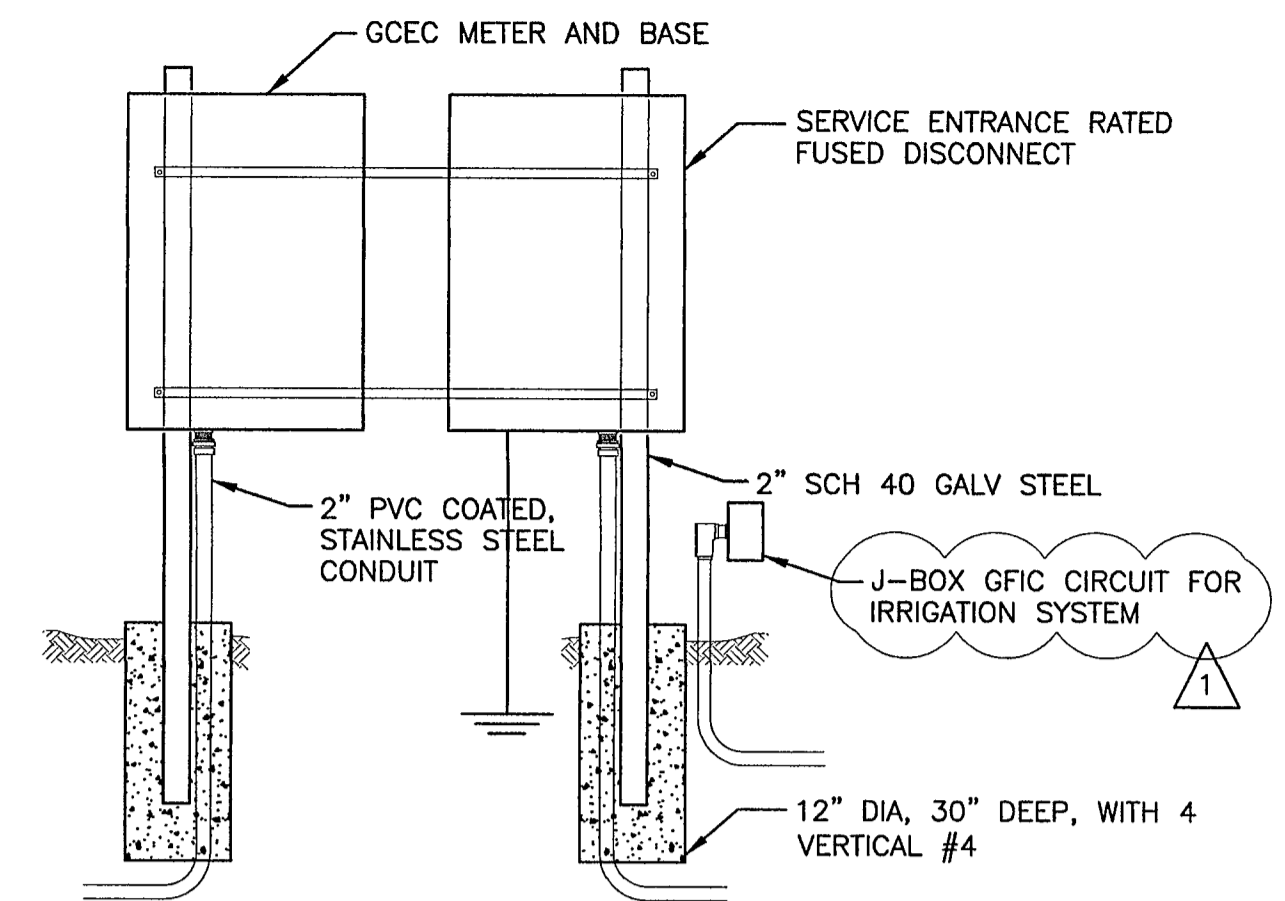
CONTRACTOR SHALL VERIFY PANEL DIMENSIONS AND REQUIRED CLEARANCES PRIOR SETTING OF SUPPORT COLUMNS OR CONSTRUCTION.



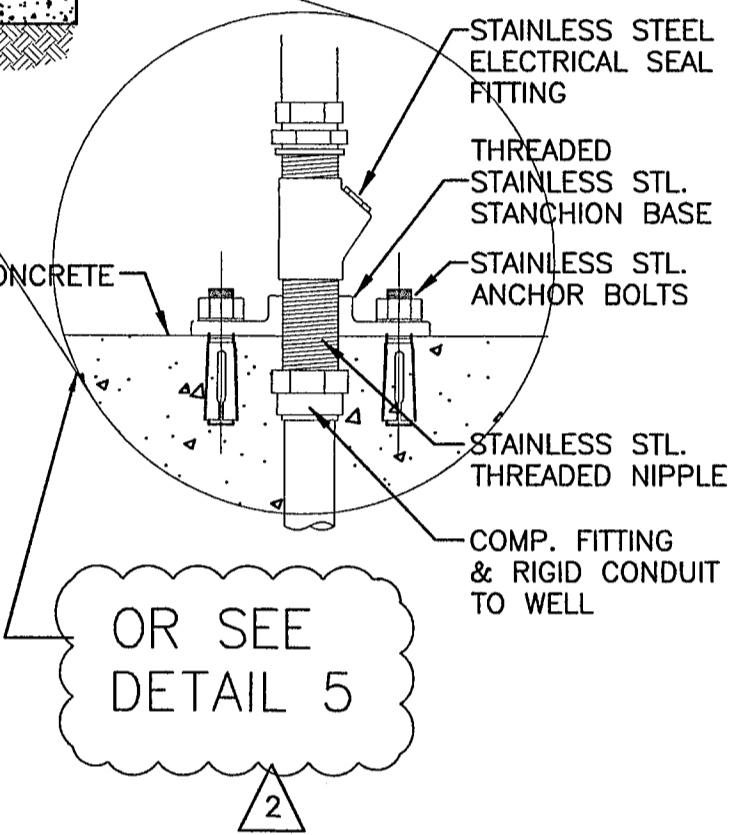
BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.
ONE INCH



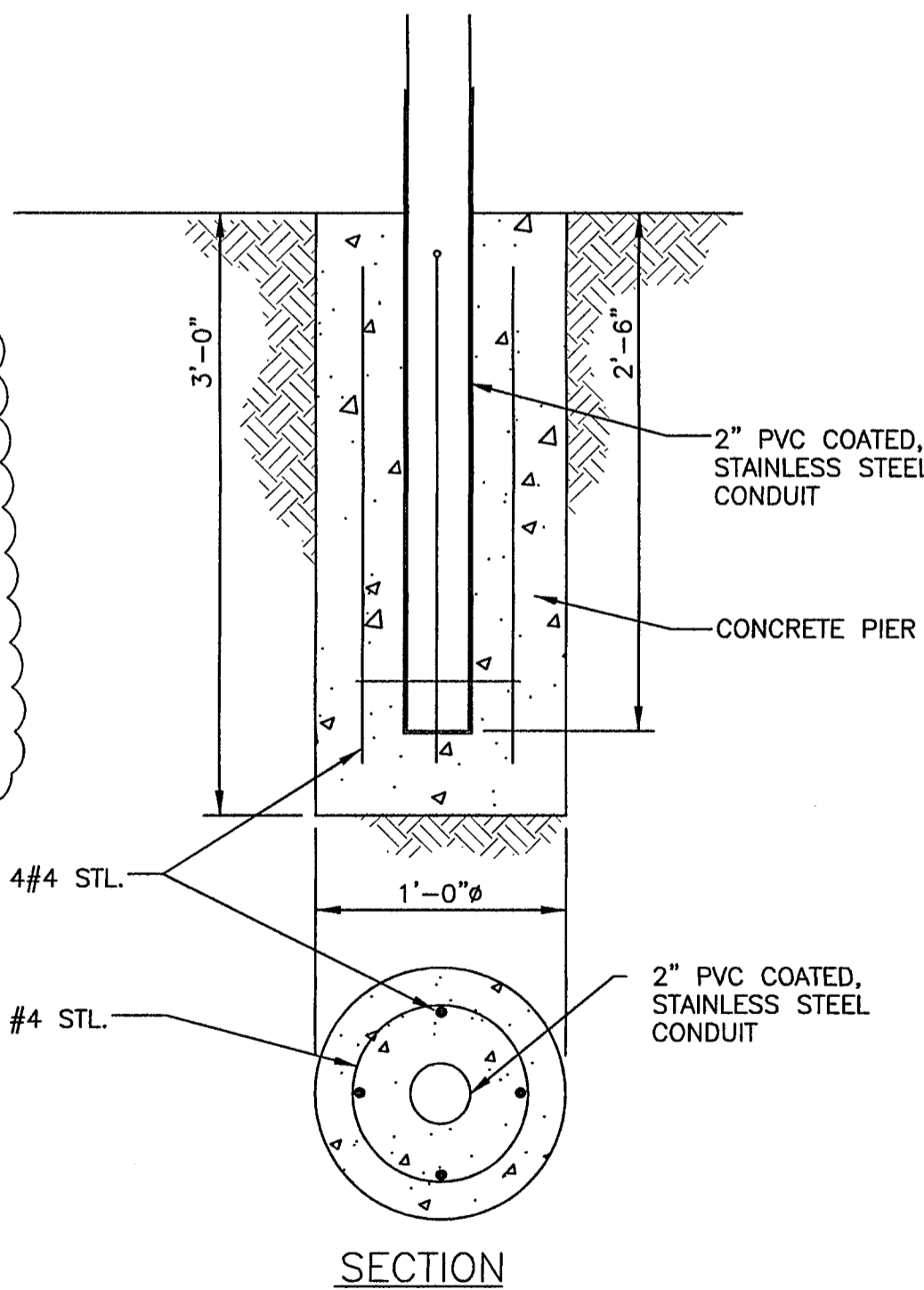
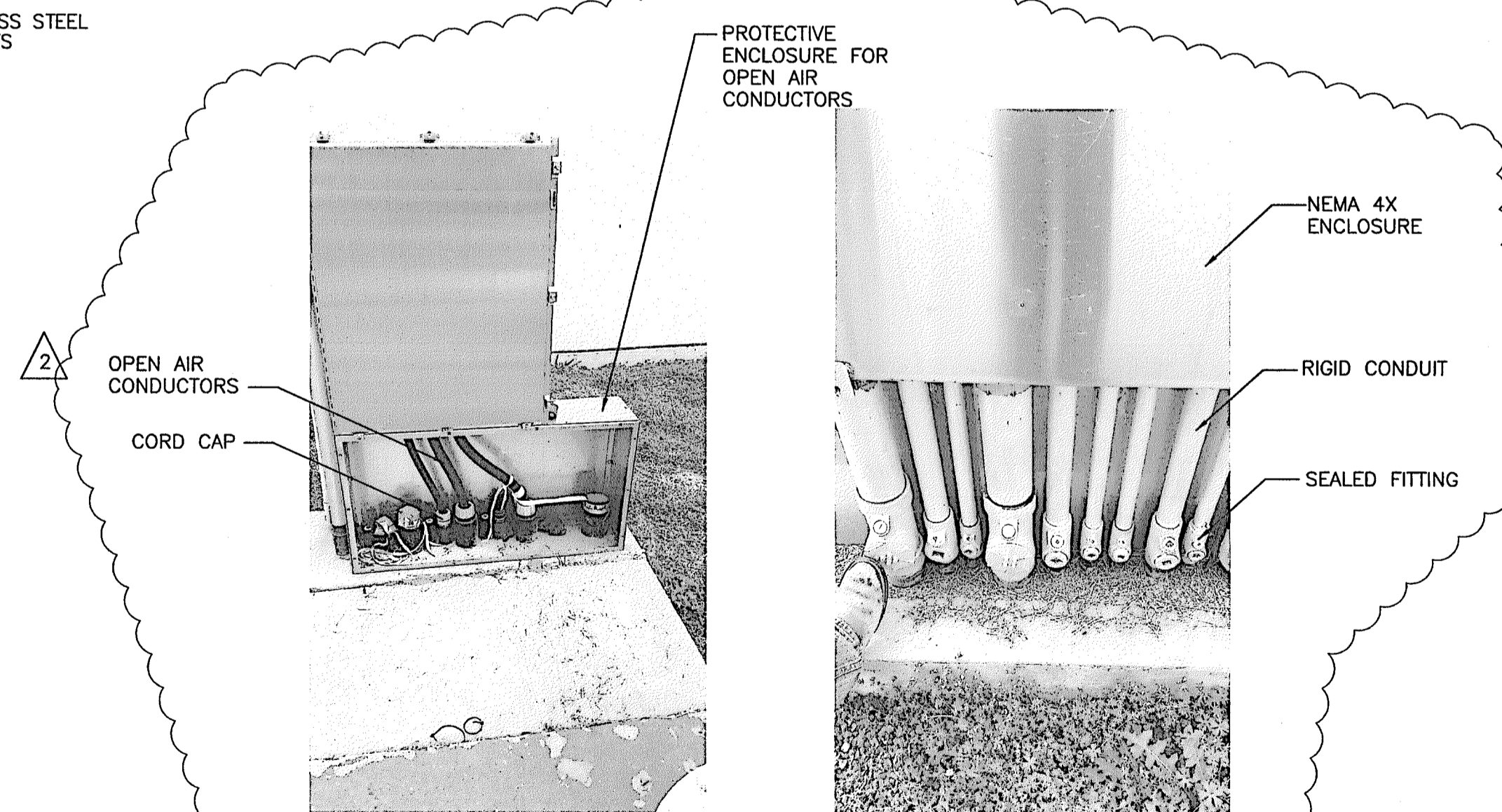
2 SUN SCREEN DETAIL
NO SCALE



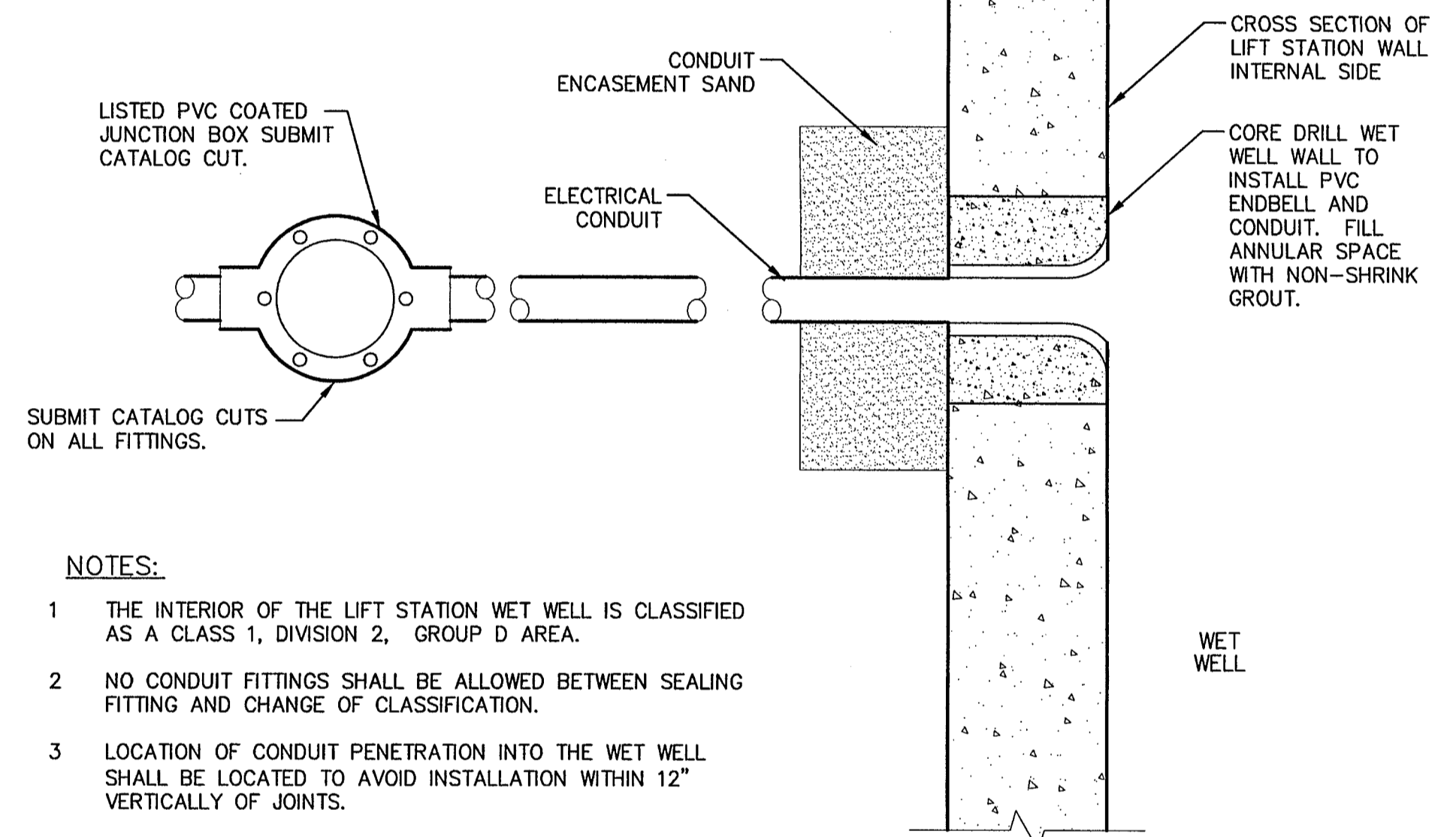
3 UNDERGROUND SERVICE METER PEDESTAL DETAIL
NO SCALE



5 EQUIPMENT CONNECTION DETAIL
NO SCALE

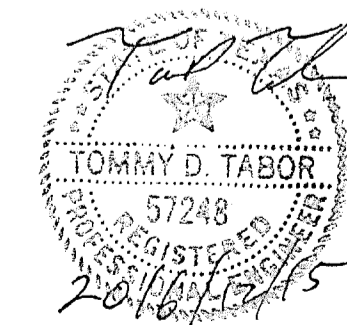


6 CONCRETE PIER DETAIL
NO SCALE

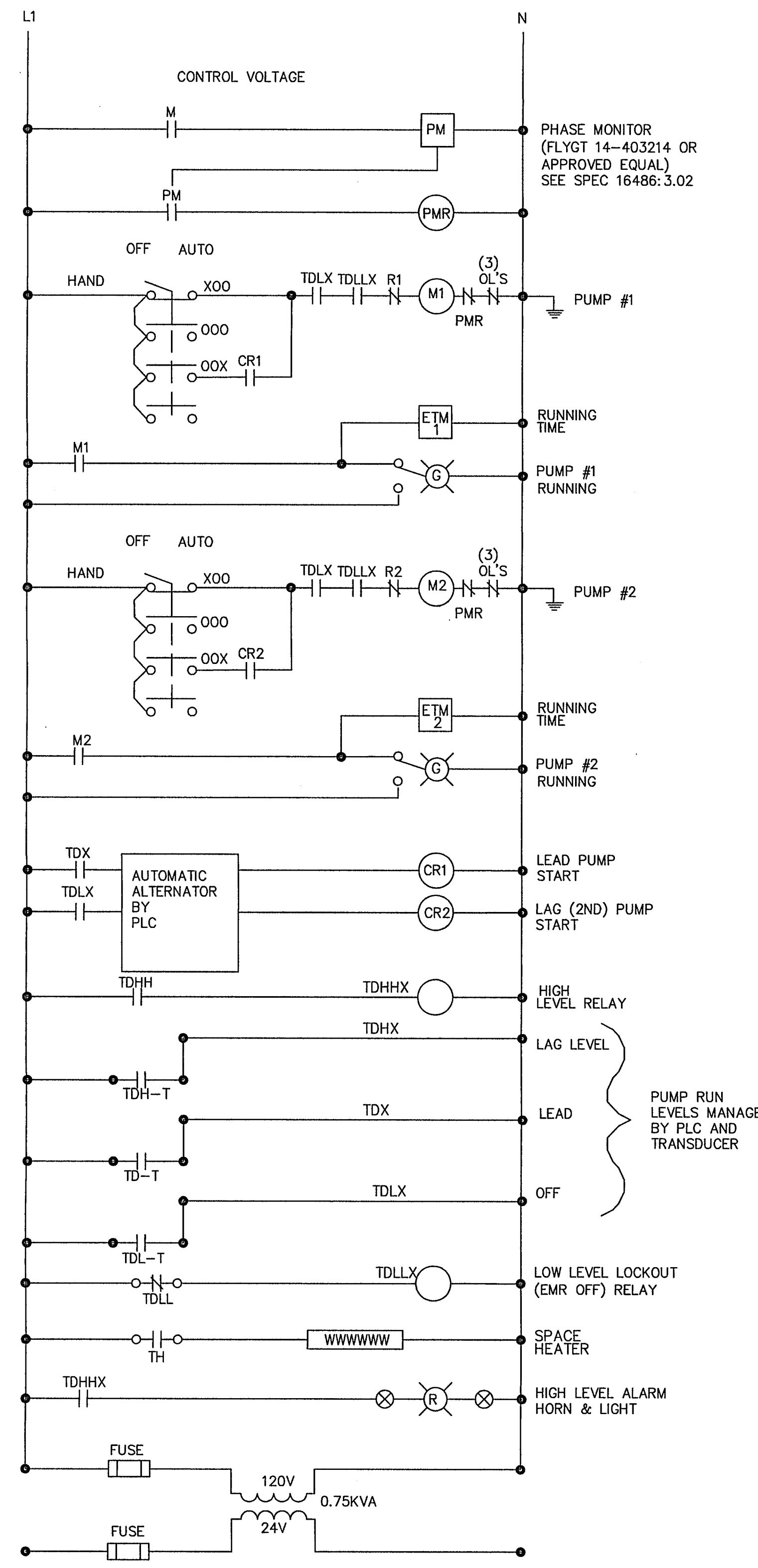


4 CONDUIT PENETRATION DETAIL
NO SCALE

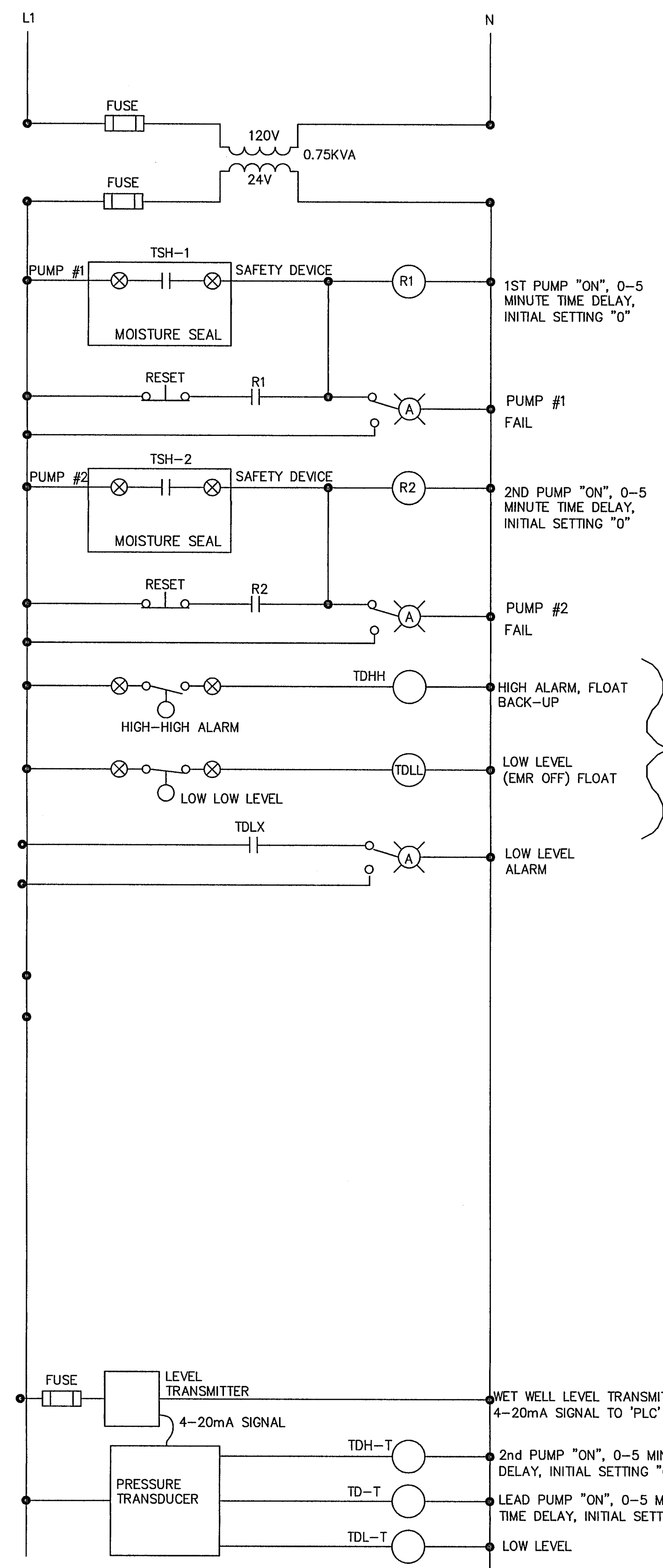
AS-BUILT JULY 2018 INFORMATION PROVIDED BY CONTRACTORS (NOT FIELD VERIFIED)



PERKINS ENGINEERING CONSULTANTS, INC. TBP# REGISTRATION NO. F-8699		BRAZOS ENVIRONMENTAL and ENGINEERING SERVICES, INC. (Firm # 639)	
DEVELOPMENT PLANS FOR SENEY DRIVE LIFT STATION ROCKWALL, TEXAS			
ELECTRICAL CONTROL PANEL DETAILS			
DRAWN BY CAC	DESIGNED BY TDT	CHECKED BY 	SHEET NO. LSE - 4
JOB NUMBER SKO 16-001	DATE 2016-12-15	SCALE NOTED	16-035-D



1 PUMP CONTROL SCHEMATIC
NO SCALE



EMERGENCY HIGH AND LOW LEVEL LOCKOUTS CONTROLLED BY FLOATS

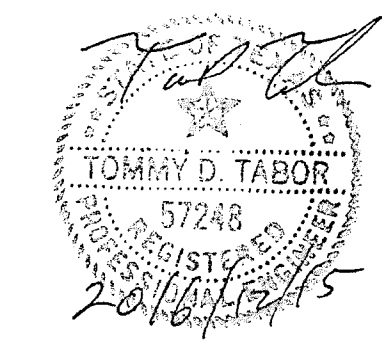
PUMP RUN LEVELS MANAGED BY PLC AND TRANSDUCER. SEE SHEET LSE-1 ROCKWALL SPECIFICATIONS.

EMERGENCY HIGH AND LOW LEVEL LOCKOUTS CONTROLLED BY FLOATS

- LEVEL TRANSMITTER SHALL BE USED TO CONTROL ALL LIFT STATION PUMP FUNCTIONS. FLOAT SWITCHES SHALL BE USED AS BACK-UP CONTROLS FOR HIGH LEVEL AND LOW LEVEL LOCKOUT ALL PUMPS "OFF".
- THE 4-20 MA OUTPUT FROM LEVEL TRANSMITTER SHALL BE THE INPUT TO THE "PLC". THE "PLC" SHALL BE CONFIGURED WITH SETPOINTS AS DIRECTED BY CITY OF ROCKWALL FOR PUMPS OFF, PUMP 1 ON, PUMP 2 ON, HIGH ALARM LEVEL POWER TO PLC AND LEVEL TRANSMITTER SHALL BE FROM CONTROL PANEL. THESE DEVICES SHALL BE INTEGRATED INTO THE PUMP CONTROL PANEL FOR POWER AND RESPONSE FUNCTION. PUMP ON/OFF SETTINGS SHALL BE CONTROLLED BY PLC EXCEPT FOR HIGH LEVEL AND LOW-LEVEL LOCK-OUT FLOATS. PUMPS MUST RUN IN 'HAND-ON' EVEN IF LOW-LEVEL LOCKOUT FLOAT IS OPEN.

- THESE DIAGRAMS ARE TO CONVEY THE GENERAL INTENT FOR THE CONTROL SEQUENCE OF OPERATION FOR A DUPLEX SEWER LIFT STATION WITH FLOAT SWITCHES AND LEVEL TRANSMITTER. CONTROL METROLOGY SHALL BE SELECTABLE FOR EITHER FLOATS OR LEVEL TRANSMITTER PROTOCOL. NOT ALL ELEMENTS ARE REPRESENTED IN THIS PUMP CONTROL SCHEMATIC.
- THE ELECTRICAL CONTROL PANEL SUPPLIER SHALL SUBMIT FOR APPROVAL A COMPLETE WIRING DIAGRAM INCLUDING, BUT NOT LIMITED TO, THE SPECIFIC MOTOR STARTERS, BREAKERS, LEVEL TRANSMITTER, FLOATS, SCADA, RELAYS, ALTERNATOR AND ALL ADDITIONAL INTEGRAL ELEMENTS FOR THE CONTROL PANEL.
- BEFORE ANY PANEL HAS BEEN BUILT, THE PANEL BUILDER SHALL OBTAIN 'FINAL APPROVAL' FROM JERRY STROUSE 972-771-7730, JSTROUSE@ROCKWALL.COM

AS-BUILT JULY 2018
INFORMATION PROVIDED BY CONTRACTORS (NOT FIELD VERIFIED)



2 2017/03/06 CITY COMMENTS

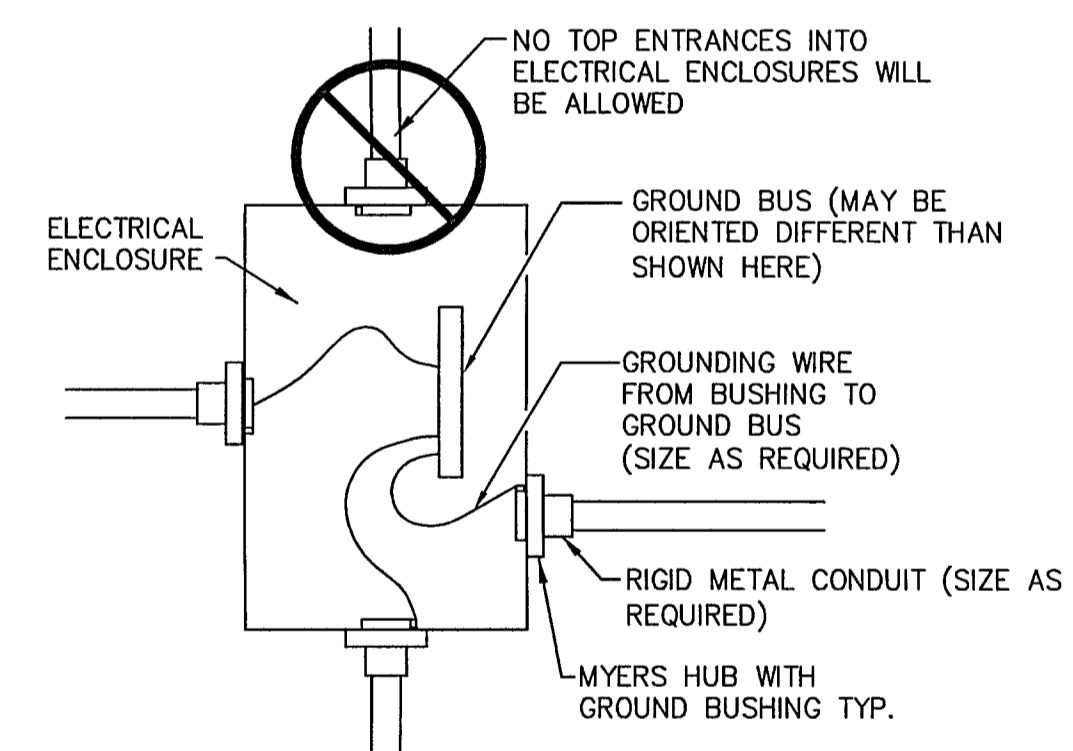
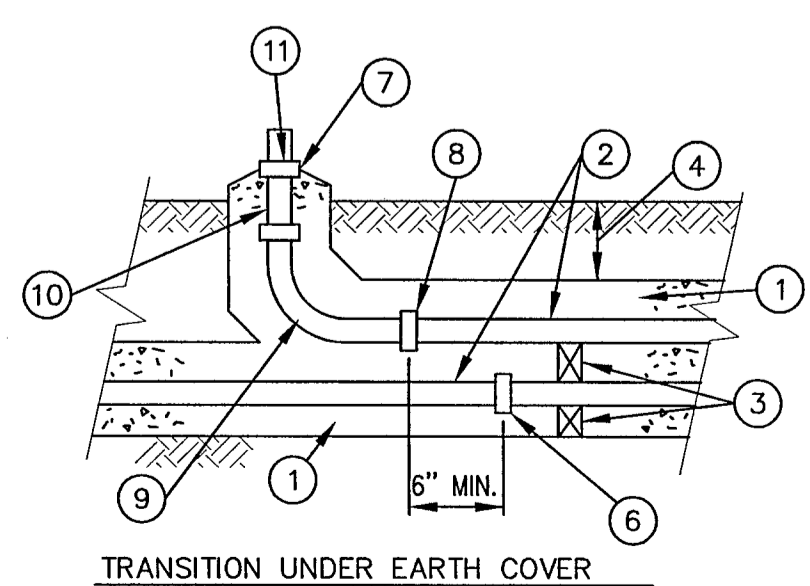
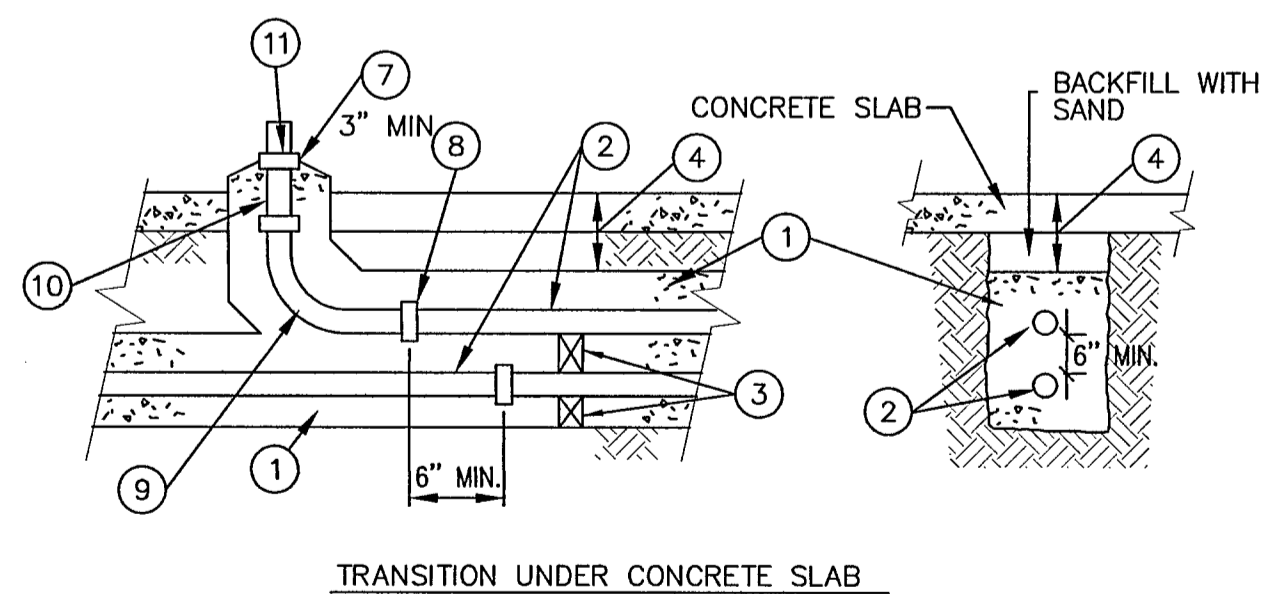
BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.
ONE INCH

PERKINS ENGINEERING CONSULTANTS, INC. 18PE REGISTRATION NO. F-9699		BRAZOS ENVIRONMENTAL and ENGINEERING SERVICES, INC. (Firm # 632)	
DEVELOPMENT PLANS FOR SENEY DRIVE LIFT STATION ROCKWALL, TEXAS			
ELECTRICAL ONE-LINE AND SPECIAL NOTES			
DRAWN BY CAC	DESIGNED BY TDT	CHECKED BY 	SHEET NO. LSE - 5
JOB NUMBER SKO 16-001	DATE 2016-12-15	SCALE NOTED	16-035-D

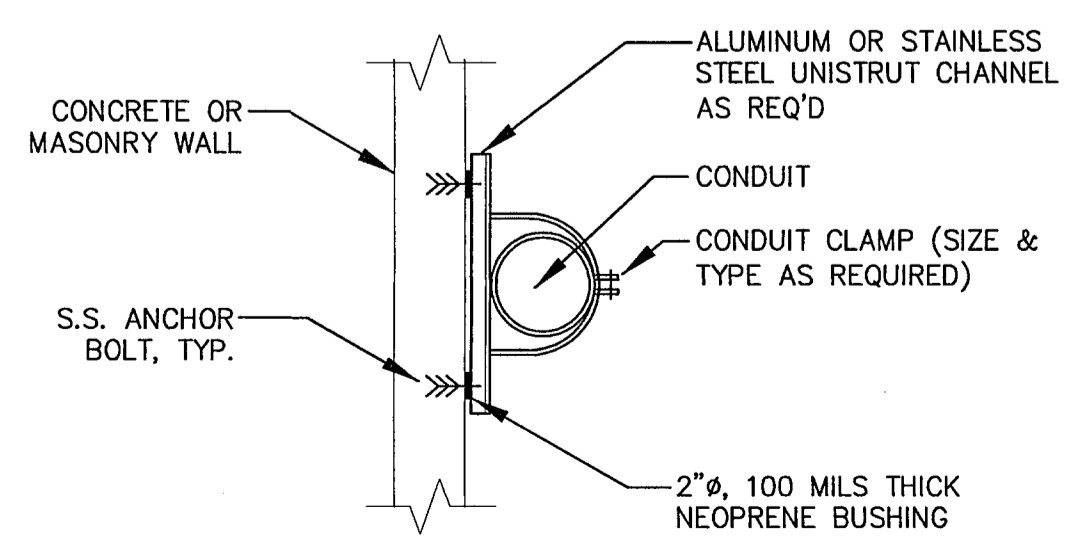
NOTES:

- ① CLASS 'C' CONCRETE.
- ② CONDUIT SIZE AS REQUIRED BY NEC UNLESS OTHERWISE DIRECTED. ALL UNDERGROUND CONDUITS SHALL BE PVC SCHEDULE 40 UNLESS OTHERWISE INDICATED ON THE PLANS.
- ③ SPACERS SHALL BE JOHNS MANVILLE PLASTIC SPACERS OR EQUIVALENT. SPACED 5'-0" O.C.
- ④ COVER SHALL BE 2'-0" MINIMUM BELOW SOIL SURFACE AND 1'-0" MINIMUM BELOW CONCRETE SLABS, OR AS SHOWN ON PLANS.
- ⑤ UNDERGROUND CONDUIT WITHIN PLANT FENCED AREA SHALL BE ENCASED IN AN ENVELOPE OF CONCRETE.
- ⑥ COUPLING.
- ⑦ PROTECT EXPOSED CONDUIT ENDS DURING CONSTRUCTION WITH PIPE PLUG OR CAPS. FUTURE AND SPARE CONDUIT ENDS SHALL HAVE PIPE PLUGS OR CAPS.
- ⑧ ADAPTOR FROM NON-METALLIC CONDUIT AS REQUIRED.
- ⑨ PVC COATED RIGID ALUMINUM CONDUIT BENDS FOR LESS THAN 2", PVC SCH 80 CONDUIT FOR 2 INCH AND LARGER.
- ⑩ RIGID ALUMINUM CONDUIT SIZE AND TYPE AS REQUIRED EXTEND THIS CONDUIT A MINIMUM OF 6" INTO CONCRETE.
- ⑪ CONDUIT TERMINATING IN AN ENCLOSURE CONTAINING A GROUND BUS SHALL HAVE A GROUNDING BUSHING WITH A GROUND WIRE TO THE GROUND BUS.

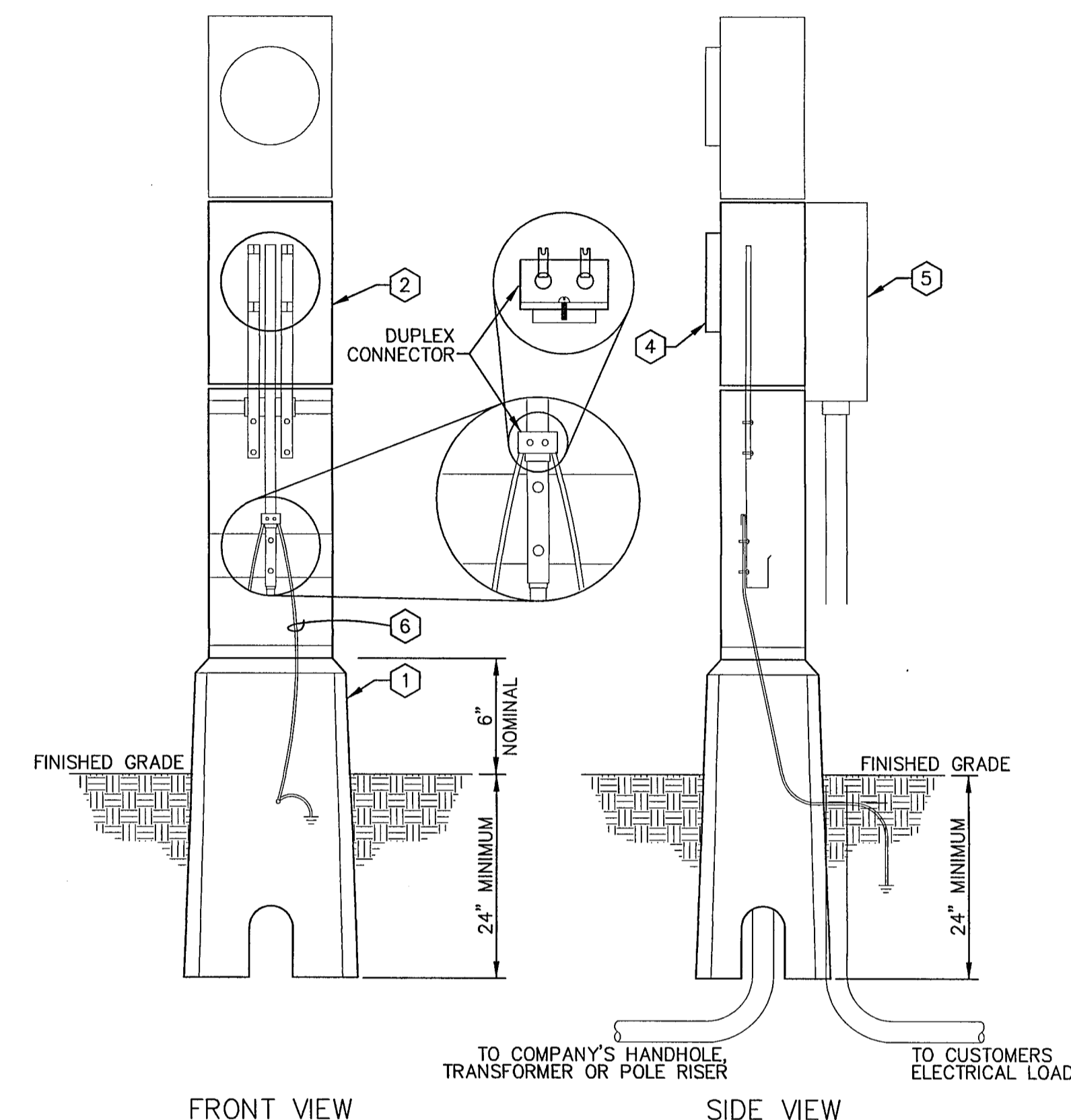
6 UNDERGROUND CONDUIT INSTALLATION DETAIL
NO SCALE



5 ENCLOSURE/CONDUIT DETAIL
NO SCALE



7 CONDUIT SUPPORT AT WALL DETAIL
NO SCALE



4 UNDERGROUND SERVICE METER PEDESTAL DETAIL
NO SCALE

- NOTES PER SYMBOL '⬡':
- 1 PRECAST FOUNDATION PROVIDED BY ELECTRIC COMPANY.
 - 2 ABOVE GROUND METER PEDESTAL PROVIDED, INSTALLED AND MAINTAINED BY CUSTOMER.
 - 3 CUSTOMER PROVIDES ANCHOR CLIPS AND BOLTS WITH METER PEDESTAL. SERVICE LATERAL OF SOURCE CONDUCTORS PROVIDED AND INSTALLED AS PER 400.02, PAGE 28.
 - 4 FOUR FEET CLEARANCE IS REQUIRED FROM METER SIDE OF PEDESTAL TO ANY OBSTRUCTION OR STRUCTURE.
 - 5 CUSTOMER SERVICE EQUIPMENT MAY BE INSTALLED ON METER PEDESTAL IN ACCORDANCE WITH ALL APPLICABLE CODES.
 - 6 CUSTOMER MAY CONNECT GROUNDING ELECTRODE CONDUCTOR TO DUPLEX CONNECTOR ON NEUTRAL BUS. THE GROUNDING ELECTRODE CONDUCTOR (#6 Cu MIN.) SHALL CONNECT TO AN APPROVED GROUND ELECTRODE. COMPANY RESERVES THE RIGHT TO REFUSE INSTALLATION OF SERVICE CONTINGENT UPON OBSERVING AN UNSAFE CUSTOMER CONNECTION.
 - 7 ALTERNATE DESIGN - CUSTOMER SHALL OBTAIN COMPANY APPROVAL OF ANY ALTERNATE DESIGN PRIOR TO INSTALLATION.

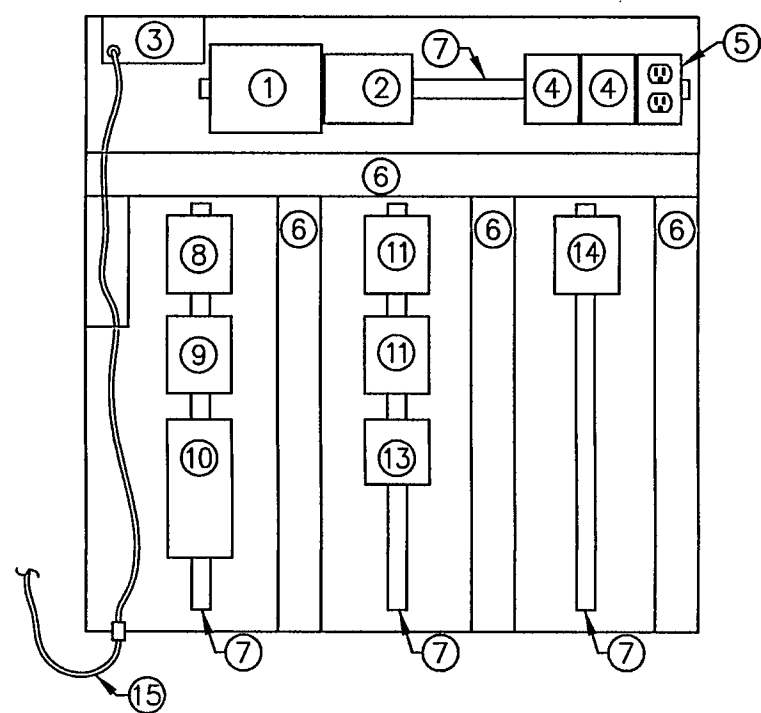
DETAIL PROVIDED PER ONCOR ELECTRICAL SERVICE COMPANY STANDARDS 2012 (FIG. 4-F).
IF OTHER UTILITY PROVIDER IS USED, A SIMILAR DETAIL FROM THAT UTILITY PROVIDER SHOULD BE SUBMITTED FOR USE.

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ONE INCH

AS-BUILT JULY 2018
INFORMATION PROVIDED BY CONTRACTORS (NOT FIELD VERIFIED)

Tommy D. Tabor
57245
1ST
2016/12/15

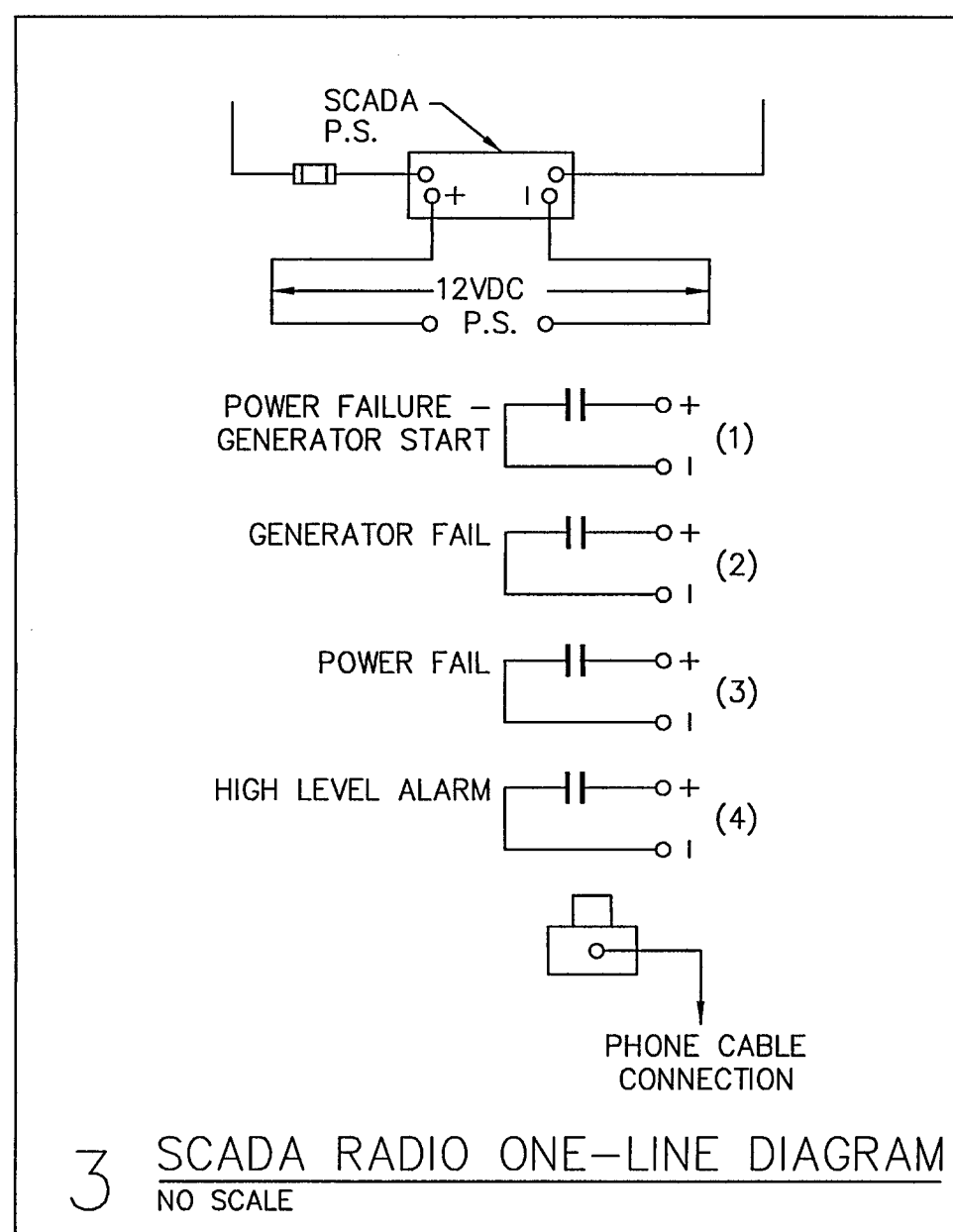
PERKINS ENGINEERING CONSULTANTS, INC. TYPE REGISTRATION NO. F-8699		BRAZOS ENVIRONMENTAL and ENGINEERING SERVICES, INC. (Firm # 639)	
DEVELOPMENT PLANS FOR SENEY DRIVE LIFT STATION ROCKWALL, TEXAS			
ELECTRICAL DETAILS			
DRAWN BY CAC	DESIGNED BY TDT	CHECKED BY	SHEET NO.
JOB NUMBER SKO 16-001	DATE 2016-12-15	SCALE NOTED	LSE - 6
16-035-D			



DESCRIPTION	I/O TYPE	FUNCTION	FIELD DEVICE	COMMENTS
WET WELL LEVEL	A/I	MONITOR	HYDRORANGER	FLOW RATE
FLOW TRANSMITTER	D/I	ALARM	HYDRORANGER	ALARM
INTRUSION ALARM INSTRUMENT ENCLOSURE	D/I	ALARM	SENSOR SWITCH	OPEN DOOR
INTRUSION ALARM INSTRUMENT ENCLOSURE	D/I	ALARM	SENSOR SWITCH	GATE OPEN
INTRUSION ALARM INSTRUMENT ENCLOSURE	D/I	ALARM	SENSOR SWITCH	HATCH OPEN
MANUAL TRANSFER SWITCH	D/I	ALARM	TRANSFER SWITCH	ONE PER ALARM
PUMP CONTROL PANEL	D/I	ALARM & MONITOR	PUMP CONTROL PANEL	ONE PER ALARM
POWER MONITOR	A/I & D/I	ALARM & MONITOR	POWER MONITOR	ONE PER ALARM

NOTES:
1. PROVIDE NECESSARY ANALOG TRANSDUCERS FOR POWER QUALITY METER (PQM) FOR MONITORING SIGNALS TO THE RTU.

3 RTU INSTRUMENT BLOCK DIAGRAM
NO SCALE

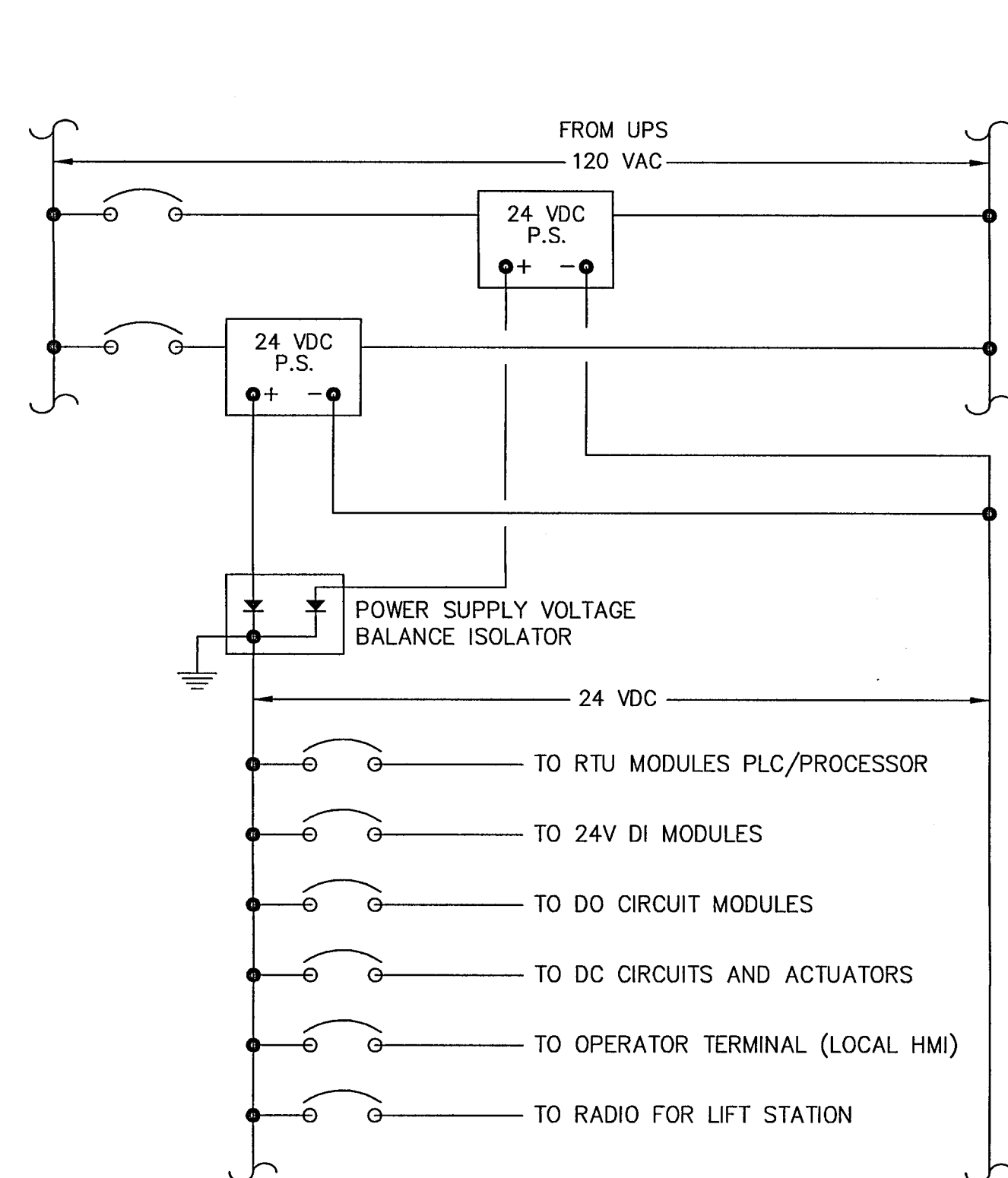


3 SCADA RADIO ONE-LINE DIAGRAM
NO SCALE

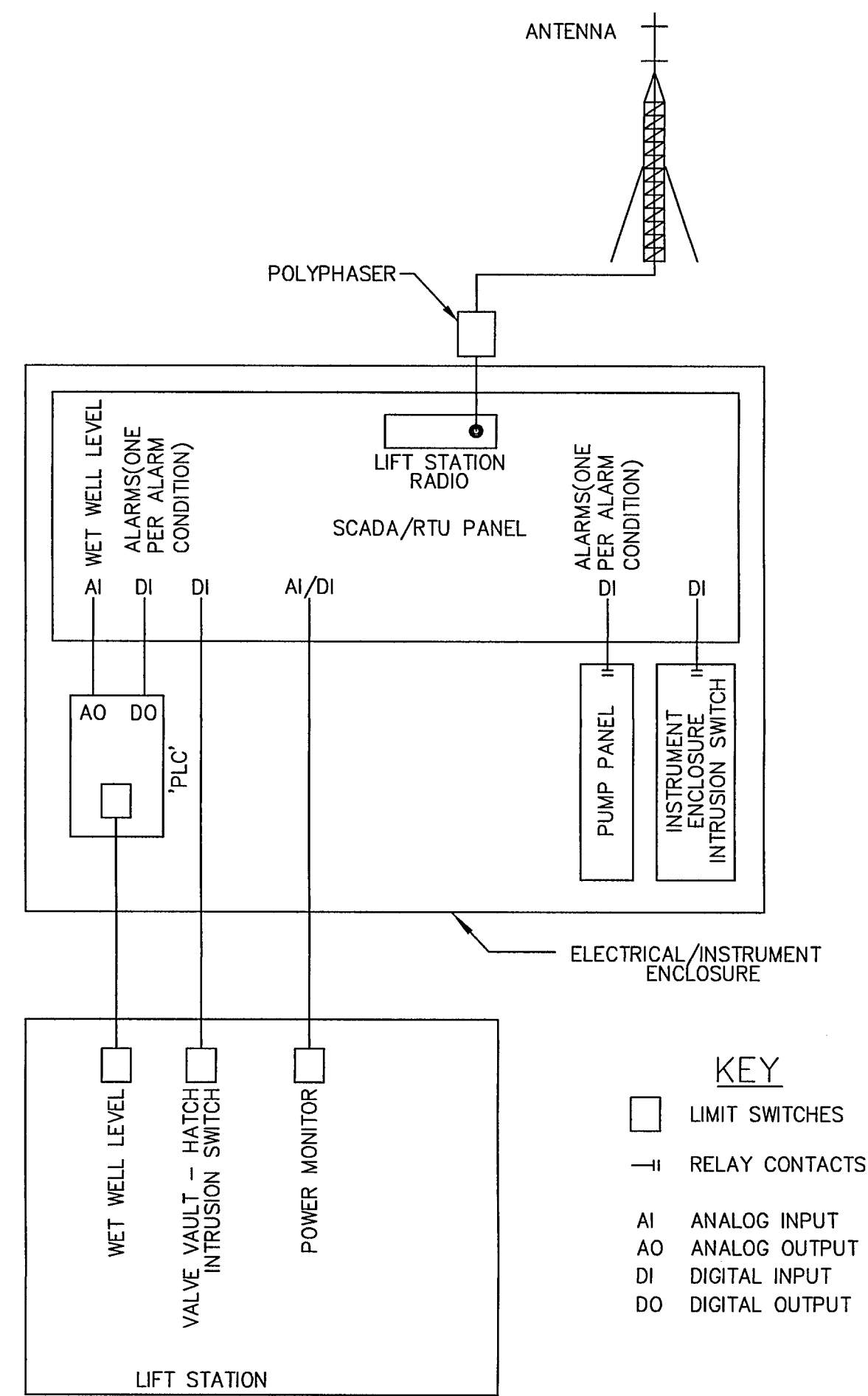
TAG	DESCRIPTION	MANUFACTURER	MODULE / TYPE	COMMENTS
1	HSQ PROCESSOR		PROCESSOR	WITH ETHERNET PORT
2	HSQ PROCESSOR MODULE		AS REQUIRED	
3	RADIOS FOR METERING STATION		AS REQUIRED PER SCADA SYSTEM	
4	POWER SUPPLY	PHOENIX CONTACT	DIN RAIL MOUNTED	AS REQUIRED
5	120 VAC RECEPTACLE	PHOENIX CONTACT	DIN RAIL MOUNTED	AS REQUIRED
6	WIRE DUCT WITH COVER	PANDUIT	2" X 3" (WHITE)	AS REQUIRED
7	DIN RAILS	PHOENIX CONTACT	AS REQUIRED	
8	CIRCUIT BREAKER	PHOENIX CONTACT	SIZE AS REQUIRED	
9	SURGE PROTECTION DEVICE	PHOENIX CONTACT	TRAB TECH	AS REQUIRED
10	FUSE & TERMINAL BLOCKS	PHOENIX CONTACT	AS REQUIRED	
11	D/I RELAY MODULE	PHOENIX CONTACT	DIN RAIL MOUNTED	16 POINT D/I
12	ANALOG SURGE PROTECTORS	PHOENIX CONTACT	TRAB TECH	AS REQUIRED
13	D/O RELAYS	PHOENIX CONTACT	DIN RAIL MOUNTED	AS REQUIRED
14	POWER SUPPLY DIODES ISOLATOR	PHOENIX CONTACT	DIN RAIL MOUNTED	REDUNDANT PS DIODES
15	ANTENNA COAX SURGE ARRESTOR	POLYPHASER	AS REQUIRED	NOT SHOWN

NOTES:
1. OPERATOR INTERFACE PANEL (OIP) TO BE MOUNTED IN FRONT DOOR OF PANEL. SEE SPECIFICATION.
2. UPS TO MOUNT IN FRONT OF PANEL.
3. CAUTION PLATE TO BE MOUNTED ON EXTERIOR OF FRONT DOOR.

1 RTU/SCADA POWER SIMPLIFIED SCHEMATIC
NO SCALE



24 VOLT
2 RTU INSTRUMENT ONE-LINE DIAGRAM
NO SCALE



KEY
 □ LIMIT SWITCHES
 — RELAY CONTACTS
 AI ANALOG INPUT
 AO ANALOG OUTPUT
 DI DIGITAL INPUT
 DO DIGITAL OUTPUT

CITY REQUIRED INSTRUCTIONS TO CONTRACTOR
 SCADA CONNECTION TO OWNER'S SYSTEM. ALL PROGRAMMING SHALL COMPLY WITH OWNER'S REQUIREMENTS. SEE CITY SPECIFICATIONS FOR SCADA REQUIREMENTS.

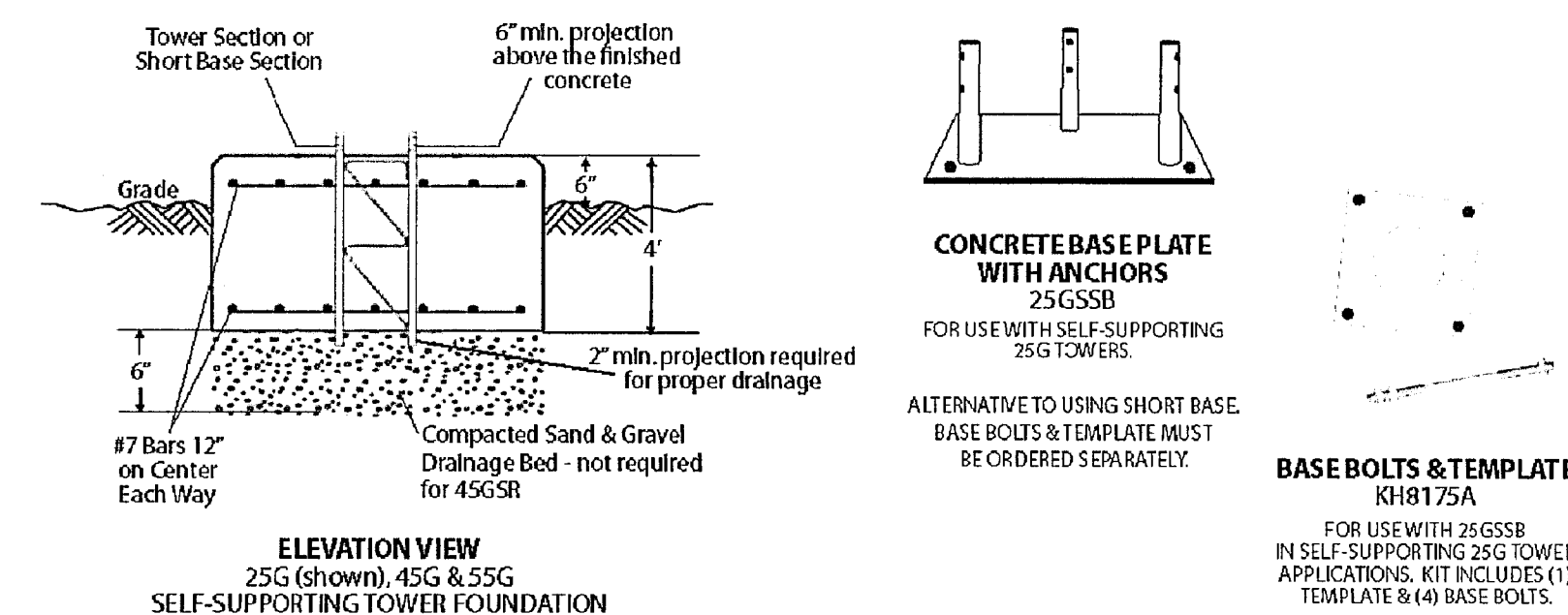
UPS SHALL BE APC-BR700G OR APPROVED EQUAL.
 TVSS SHALL BE SIEMENS TPS3F1115D OR APPROVED EQUAL.
 DC POWER SUPPLIES SHALL PHOENIX, MINIMUM 1.2AMP, 24 VOLT OR APPROVED EQUAL.
 INTRUSION DETECTION SHALL BE SQUARE D, STAINLESS STEEL LIMIT SWITCHED OR APPROVED EQUAL.
 RADIO SHALL MATCH THE EXISTING SYSTEMS RADIOS OR APPROVED EQUAL.
 ANTENNA SHALL MATCH THE EXISTING SYSTEMS ANTENNAS, OR APPROVED EQUAL.
 ANTENNA CABLE SHALL BE 1/2" DIAMETER IF LESS THAN 50 FT, OR 7/8" FOR GREATER THAN 50 FT.
 SCADA SHALL MONITOR THE OPERATION OF THE LIFT STATION ONLY.
 THE LIFT STATION SHALL BE CONTROLLED FROM THE LOCAL LEVELS.
 INTRINSICALLY SAFE BARRIER ON ALL CABLES, OR CONDUCTORS TO WET WELL.

AS-BUILT JULY 2018
 INFORMATION
 PROVIDED
 BY CONTRACTORS
 (NOT FIELD VERIFIED)

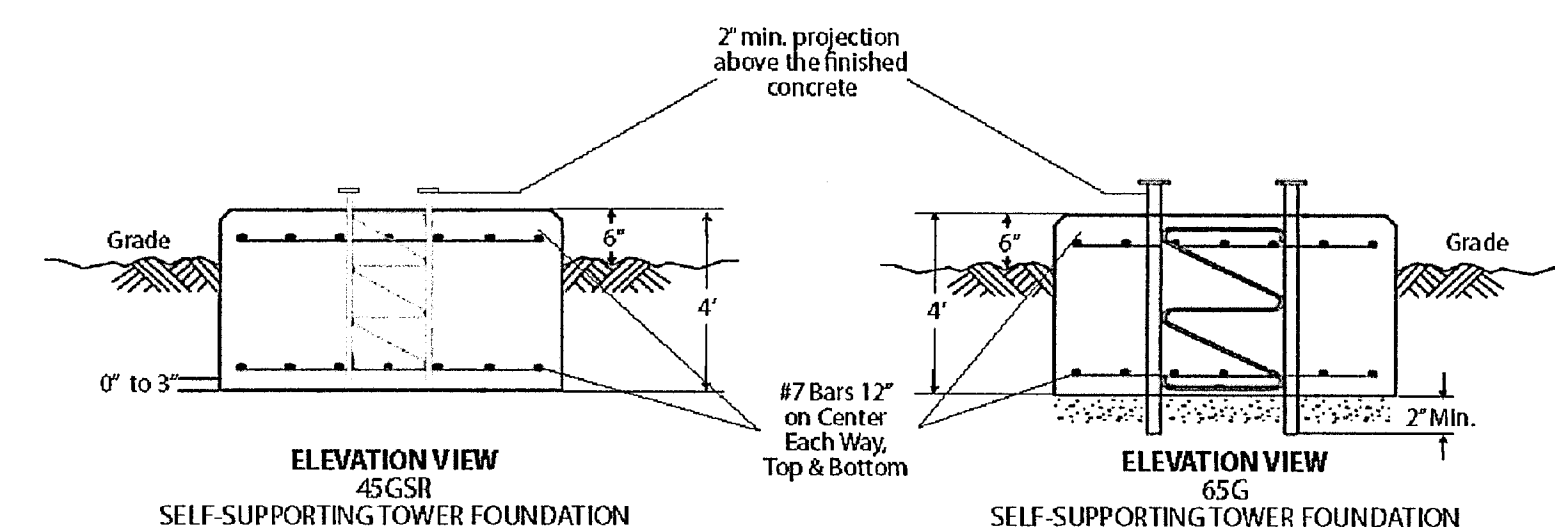
100 MPH
 2555010

Height	100 MPH 3-Second Gust Wind Speed														
	25G		45G		55G		65G								
	EPA	Part No.	EPA	Part No.	EPA	Part No.	EPA	Part No.							
10'	20.7	16.4	2555010	47.4	39.5	4555010	82	66	4555010	78	63	5555010	95	95	6555010
20'	14.0	9.9	2555020	23.2	16.9	4555020	74	55	4555020	43	32	5555020	95	95	6555020
30'	5.3	2.2	2555030	9.7	4.8	4555030	66	43	4555030	24	14	5555030	81	55	6555030
35'	2.1	-	2555035	5.1	0.7	4555035	59	38	4555035	17	8	5555035	61	40	6555035
40'						4555040	46	30	4555040	10	3	5555040	47	29	6555040
45'							35	22	4555045	5	-	5555045	35	20	6555045
50'							27	15	4555050				26	13	6555050
55'							20	9	4555055				17	6	6555055
60'							13	4	4555060				11	1	6555060

SELF-SUPPORTING G-SERIES FOUNDATIONS



Tower	Mat Width (W)	Concrete Volume (Cu. Yds.)
25G	4' - 0"	2.4
45G	5' - 3"	4.1
55G	6' - 0"	5.3
45GSR 65G	7' - 9"	8.9



ROIN
 PERKINS ENGINEERING CONSULTANTS, INC.
 BRAZOS ENVIRONMENTAL AND ENGINEERING SERVICES, INC.

AS-BUILT
 JULY 2018
 INFORMATION
 PROVIDED
 BY CONTRACTORS
 (NOT FIELD VERIFIED)

DEVELOPMENT PLANS FOR
SENEY DRIVE LIFT STATION
 ROCKWALL, TEXAS

SCADA DETAILS

DRAWN BY CAC	DESIGNED BY TDT	CHECKED BY	SHEET NO. LSE - 7
JOB NUMBER SKO 16-001	DATE 2016-12-15	SCALE NOTED	

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 ONE INCH