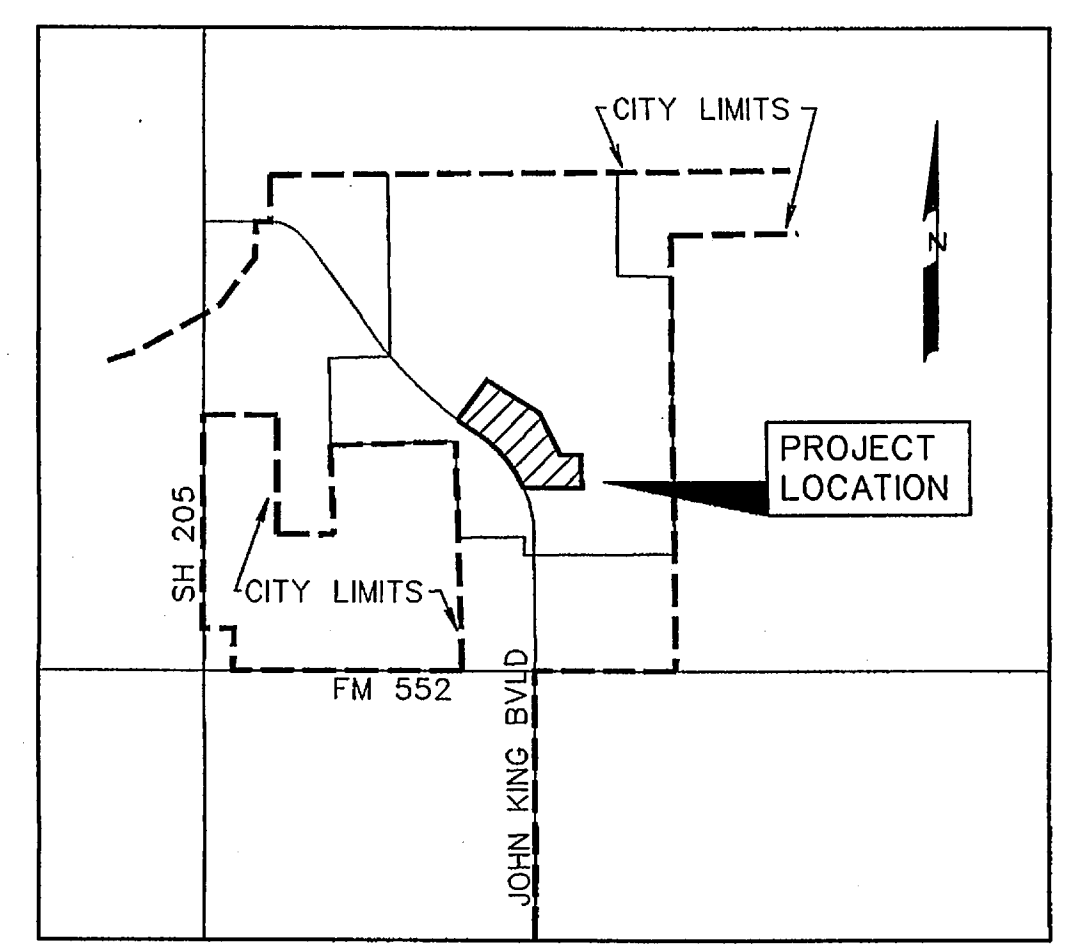


DEVELOPMENT PLANS FOR BREEZY HILL PHASE I CITY OF ROCKWALL, TEXAS

INDEX

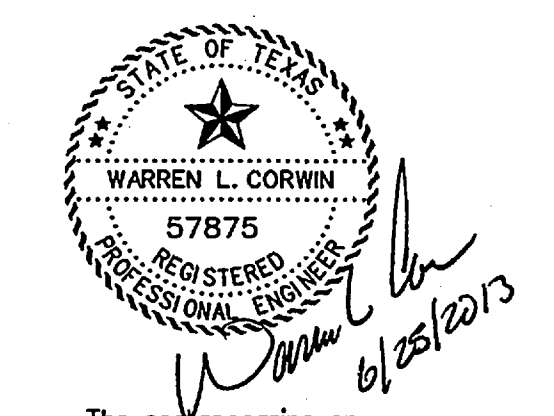
1	TITLE
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VICINITY MAP
NOT TO SCALE

PREPARED FOR
BH PHASE 1 SF, LTD.
8214 WESTCHESTER DRIVE, SUITE 710 DALLAS, TEXAS 75225

CORWIN ENGINEERING, INC. — CONSULTING ENGINEERS
200 W. BELMONT, SUITE E ALLEN, TEXAS 75013



The seal appearing on this document was authorized by Warren L. Corwin, P.E. 57875, on June 25, 2013

AS-BUILT APRIL 2014
INFORMATION PROVIDED BY CONTRACTORS
(NOT FIELD VERIFIED)

NO.	COMMENTS	BY	DATE
2	COMMENTS	DS	6-6-13
1	PER CITY COMMENTS	DS	1-9-13
	REVISIONS		

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

LEGAL DESCRIPTION

BEING, a tract of land situated in the J. Strickland Survey, Abstract No. 187, in the City of Rockwall, Rockwall County, Texas, being all of a 21.857 acre tract, as described in Clerks File No. 2012-467951 in the Deed Records of Rockwall County, Texas and being more particularly described as follows:

BEGINNING, at a 1/2 inch iron rod set at the southwest corner of said 21.857 acre tract, being in the east line of John King Boulevard (120' R.O.W.)

THENCE, along the east line of said John King Boulevard and the west line of said 21.857 acre tract, being on a curve to the left, having a radius of 1560.00 feet, a central angle of 31°02'46", and a tangent of 433.30 feet; **THENCE**, continuing along said lines and with said curve to the left for an arc distance of 845.30 feet (Chord Bearing North 40°22'39" West - 835.00 feet), to a 1/2 inch iron rod set at the point of reverse curvature of a curve to the right, having a radius of 4840.00 feet, a central angle of 02°00'22", and a tangent of 86.49 feet;

THENCE, continuing along said lines and with said curve to the right for an arc distance of 172.86 feet (Chord Bearing North 54°53'52" West - 172.96 feet), to a 1/2 inch iron rod set at the northwest corner of said 21.857 acre tract;

THENCE, North 35°45'14" East, departing the east line of said John King Boulevard and along the north line of said 21.857 acre tract, for a distance of 339.01 feet, to a 1/2 inch iron rod set on a curve to the left, having a radius of 4601.00 feet, a central angle of 00°11'49", and a tangent of 7.91 feet;

THENCE, continuing along said north line, to a 1/2 inch iron rod set at the point of beginning of a curve to the right, having a radius of 4840.00 feet, a central angle of 02°00'22", and a tangent of 86.49 feet;

THENCE, North 38°38'15" East, continuing along said north line, for a distance of 264.77 feet, to a 1/2 inch iron rod set at the northeast corner of said 21.857 acre tract;

THENCE, South 54°20'06" East, along the east line of said 21.857 acre tract, for a distance of 497.50 feet, to a 1/2 inch iron rod set;

THENCE, South 51°21'45" East, continuing along said north line, for a distance of 709.84 feet, to a 1/2 inch iron rod set;

THENCE, South 89°33'00" East, continuing along said north line, for a distance of 132.35 feet, to a 1/2 inch iron rod set at the northeast corner of said 21.857 acre tract;

THENCE, South 00°27'00" West, along the east line of said 21.857 acre tract, for a distance of 230.00 feet, to a 1/2 inch iron rod set;

THENCE, South 89°33'00" East, continuing along said east line, for a distance of 15.00 feet, to a 1/2 inch iron rod set;

THENCE, South 00°27'00" West, continuing along said east line, for a distance of 250.00 feet, to a 1/2 inch iron rod set at the southeast corner of said 21.857 acre tract;

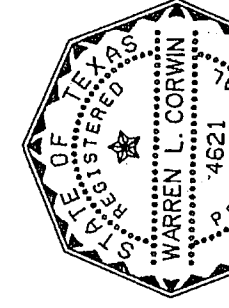
THENCE, North 89°33'00" West, along the south line of said 21.857 acre tract, for a distance of 796.02 feet, to the **POINT OF BEGINNING** and containing 21.845 acres of land.

SURVEYOR CERTIFICATE

I, WARREN L. CORWIN, do hereby certify that the plat shown hereon accurately represents the results of a survey on the ground survey made under my direction and supervision and all corners are as shown thereon and there are no errors or omissions in the plat shown hereon and that the same has been prepared in accordance with the plotting rules and regulations of the City Plan Commission of the City of Rockwall, Texas.

DATED the 2nd day of Dec., 2013.

WARREN L. CORWIN
R.P.L.S. No. 4821

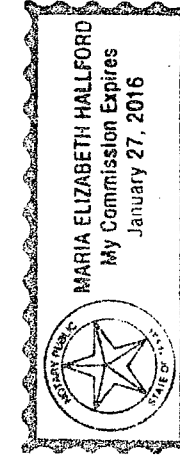


**THE STATE OF TEXAS
COUNTY OF COLLIN**

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

WITNESS MY HAND AND SEAL OF OFFICE, this 2nd day of Dec., 2013.

Notary Public in and for the State of Texas
Date: 11/19/2013

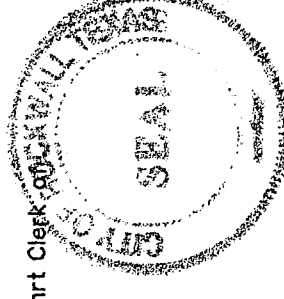


APPROVED
I hereby certify that the above and foregoing plat of an addition to the City of Rockwall, Texas, was approved by the City Council of the City of Rockwall on the 15th day of January, 2013.

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

WITNESS OUR HANDS, this 15th day of January, 2013.

Paul Seibert
Mayer, City of Rockwall



OWNERS CERTIFICATE

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS: THE CITY OF ROCKWALL

The undersigned owners of this land shown on this plat, and designated herein as the BREEZY HILL PHASE I, subdivision to the City of Rockwall, Texas, and whose name is subscribed hereon, hereby irrevocably and exclusively dedicate to the use of the public forever, streets, alleys, parks, water courses, and any public utility shall at all times have the right of ingress or egress to, from and upon the said BREEZY HILL PHASE I, subdivision that other parties who have a mortgage or lien interest in the BREEZY HILL PHASE I, 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 maintenance and accommodation of all utilities desiring to use or using same. We also understand the following:

- No buildings shall be constructed or placed upon, over, or across the utility easements as described herein.
- Any public utility shall have the right to remove and keep reserved all part of any buildings, fences, trees, shrubs, or other growths or improvements which in any way encroach or interfere with the 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, either adding to or removing all or part of their respective system without the necessity of, at any time, procuring the permission of anyone.
- The City of Rockwall shall be responsible for any claims of any nature resulting from or occasioned by the establishment of grade of streets in the subdivision.
- The developer and subdivision engineer shall bear total responsibility for storm drain improvements.
- The developer shall be responsible for the necessary facilities to provide drainage patterns and drainage control such that properties within the drainage area are not adversely affected by storm drainage from the development.
- No house dwelling unit, or other structure shall be constructed on any lot in this addition by the owner of the same, or any other person, and/or owner has complied with all requirements of the subdivision regulations of the City of Rockwall, Texas, and the plat shown hereon, including the dedication of streets with the required base and paving, curb and gutter, water and sewer, drainage structures, structures, storm sewers, and alleys, 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 of Rockwall, is deposited with the City Secretary, and the City Secretary has issued a permit authorizing the city secretary, accompanied by an escrow deposit, to the developer and/or owner, same made by a contractor and pay for the same out of the escrow deposit, should the developer fail to make such improvements, the City of Rockwall shall be obligated to make such improvements. 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 regulations 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, and 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 excisions made herein are proportional to the impact of the Subdivision upon the public services required in order that the development will be self-sufficient and that the City of Rockwall will not be required to incur any additional expense or liability hereby waive any claim, damage, or cause of action that we may have as a result of the dedication of excisions made herein.

BREEZY HILL 405, LTD.
By: BREEZY HILL 405, LTD. GP Corporation,
a Texas Corporation, its General Partner

Richard M. Stierberg
President

STATE OF TEXAS
COUNTY OF DALLAS
I, 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 stated.

Given upon my hand and seal of office this 11th day of January, 2013.
Notary Public in and for the State of Texas
MAY 9, 2017
MARGIE M. BRADY
Notary Public

STATE OF TEXAS
COUNTY OF DALLAS
Before me, the undersigned authority, 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 stated.

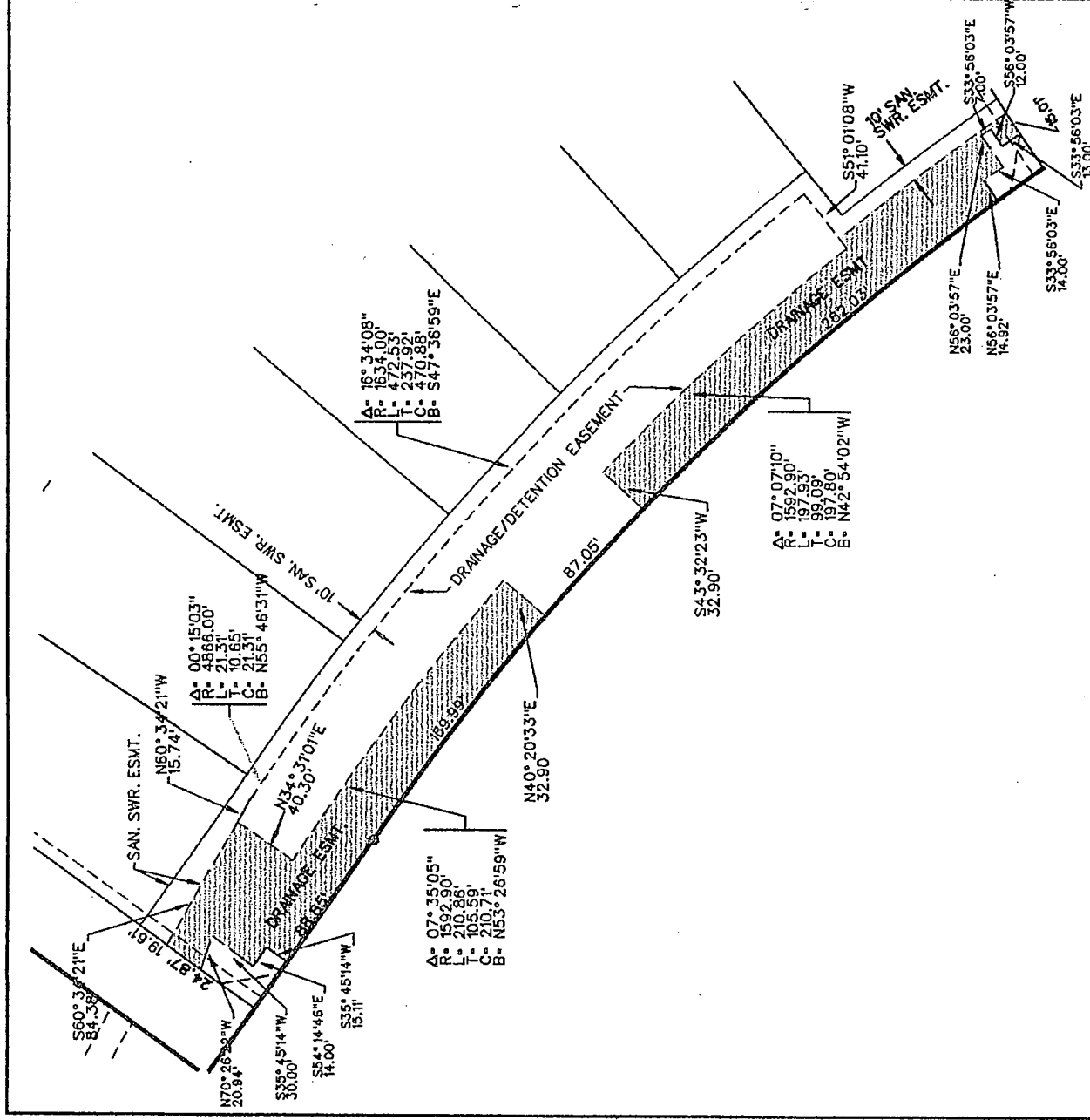
Given upon my hand and seal of office this 11th day of January, 2013.

Notary Public in and for the State of Texas My Commission Expires: 05/09/2015
MAY 9, 2017
MARGIE M. BRADY
Notary Public

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 streets, water, sewer and storm drainage systems shall be a condition of the final plat approval. Any plat which such plat shall be approved, authorized, or permit therefore, issuance of a permit for such purpose shall constitute any representation, assurance or guarantee by the City of the adequacy and availability for water for personnel and fire protection within such plat, as required under Ordinance 85-54.

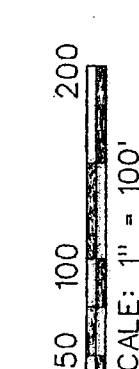
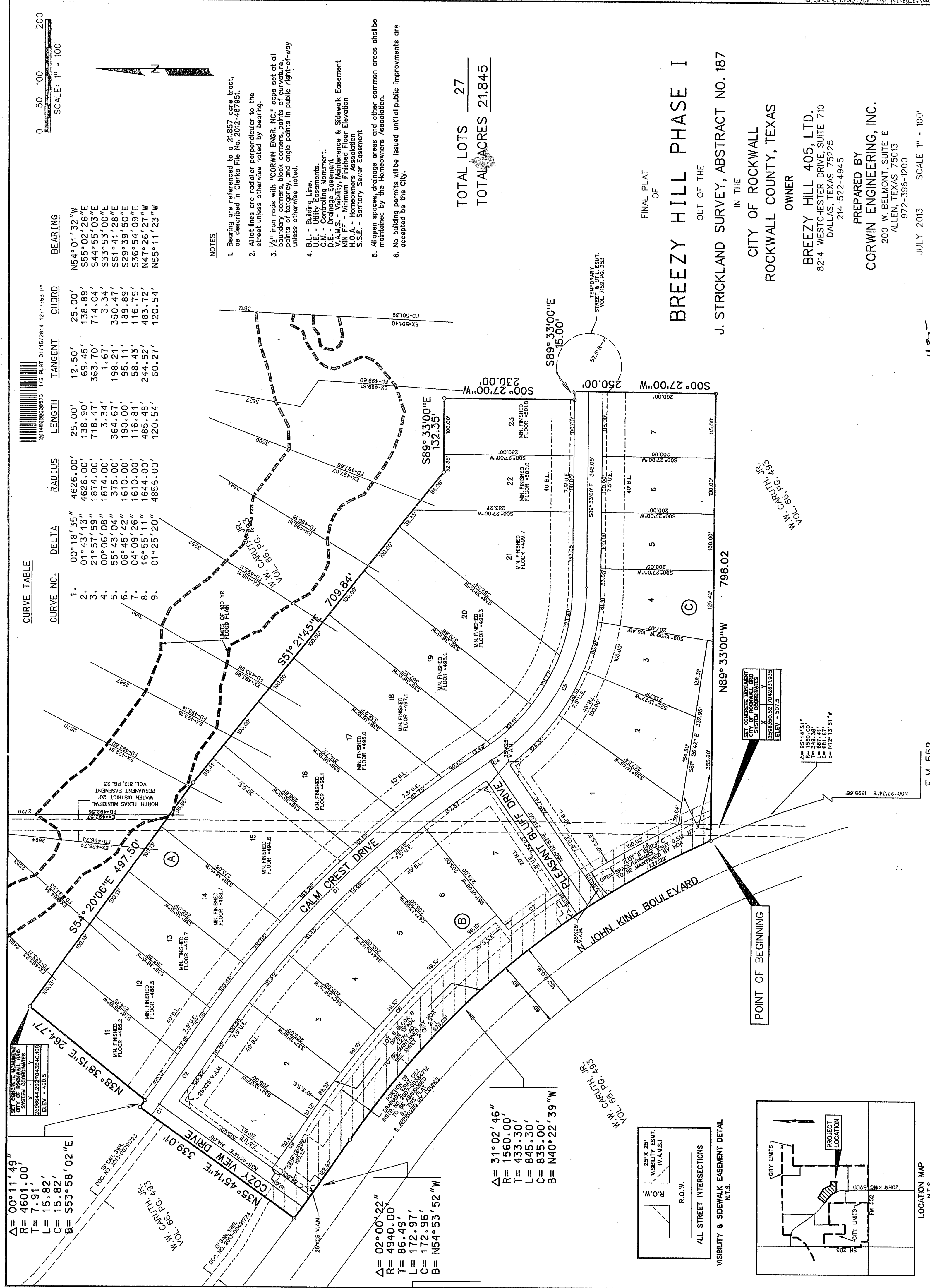
Filed and Recorded
Official Public Records
Rockwall County, Texas
01/19/2014 12:17:53 PM
20140200002673

Stierberg



EASEMENT DETAIL
LOT 8 BLOCK B
SCALE 1" = 100'
H376

CASE #P2013-023
SHEET 2 OF 2

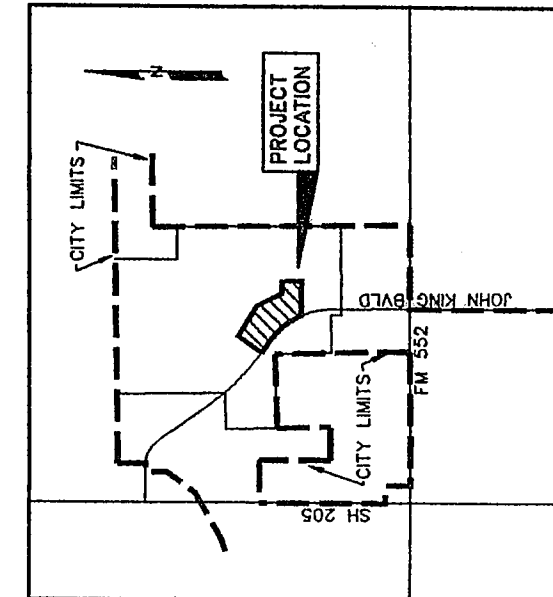


- NOTES**
- Bearing are referenced to a 21.857 acre tract, as described in Clerks File No. 2012-467951.
 - All lot lines are radial or perpendicular to the street unless otherwise noted by bearing.
 - 1/2" Iron rods with "CORWIN ENGR. INC." caps set at all corners, monuments, and easement lines, and points of tangency and angle points to public right-of-way unless otherwise noted.
 - BL - Building Line
 - U.E. - Utility Easements
 - C.E. - Conveying Monument
 - V.A.M.S. - Visibility Maintenance & Sidewalk Easement
 - M.O.P.F. - Minimum Finished Floor Elevation
 - S.S.E. - Sanitary Sewer Easement
 - Along access, drainage areas and other common areas shall be maintained by the Homeowners Association.
 - No building permits will be issued until public improvements are accepted by the City.

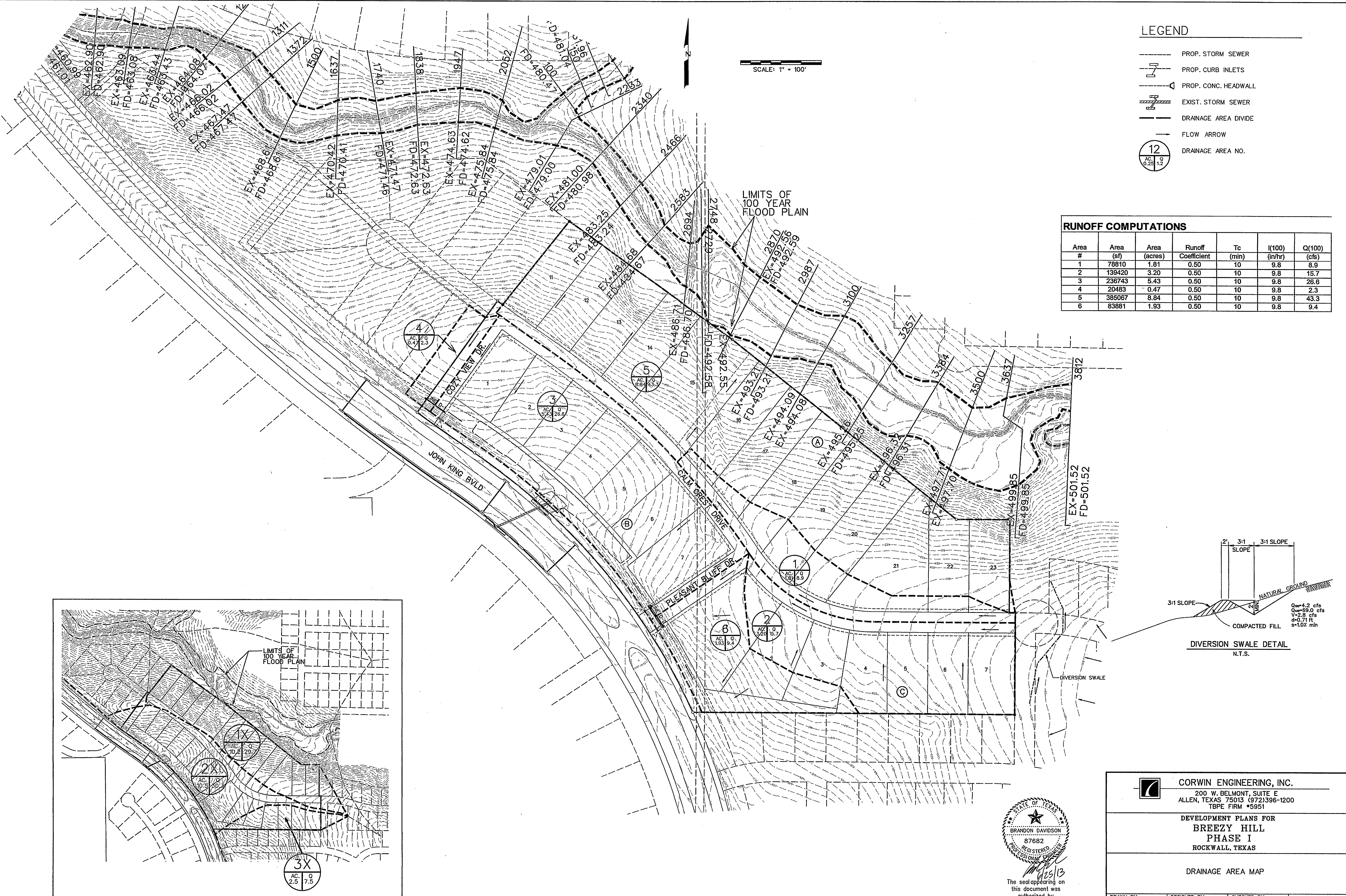
TOTAL LOTS 27
TOTAL ACRES 21.845

FINAL PLAT OF
BREEZY HILL PHASE I
OUT OF THE
J. STRICKLAND SURVEY, ABSTRACT NO. 187
IN THE
CITY OF ROCKWALL
ROCKWALL COUNTY, TEXAS
OWNER
BREEZY HILL 405, LTD.
8214 WESTCHESTER DRIVE, SUITE 710
DALLAS, TEXAS 75225
214-522-4945
PREPARED BY
CORWIN ENGINEERING, INC.
200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013
972-396-1200

JULY 2013 SCALE 1" = 100'
CASE #P2013-023
SHEET 1 OF 2



LOCATION MAP
N.T.S.



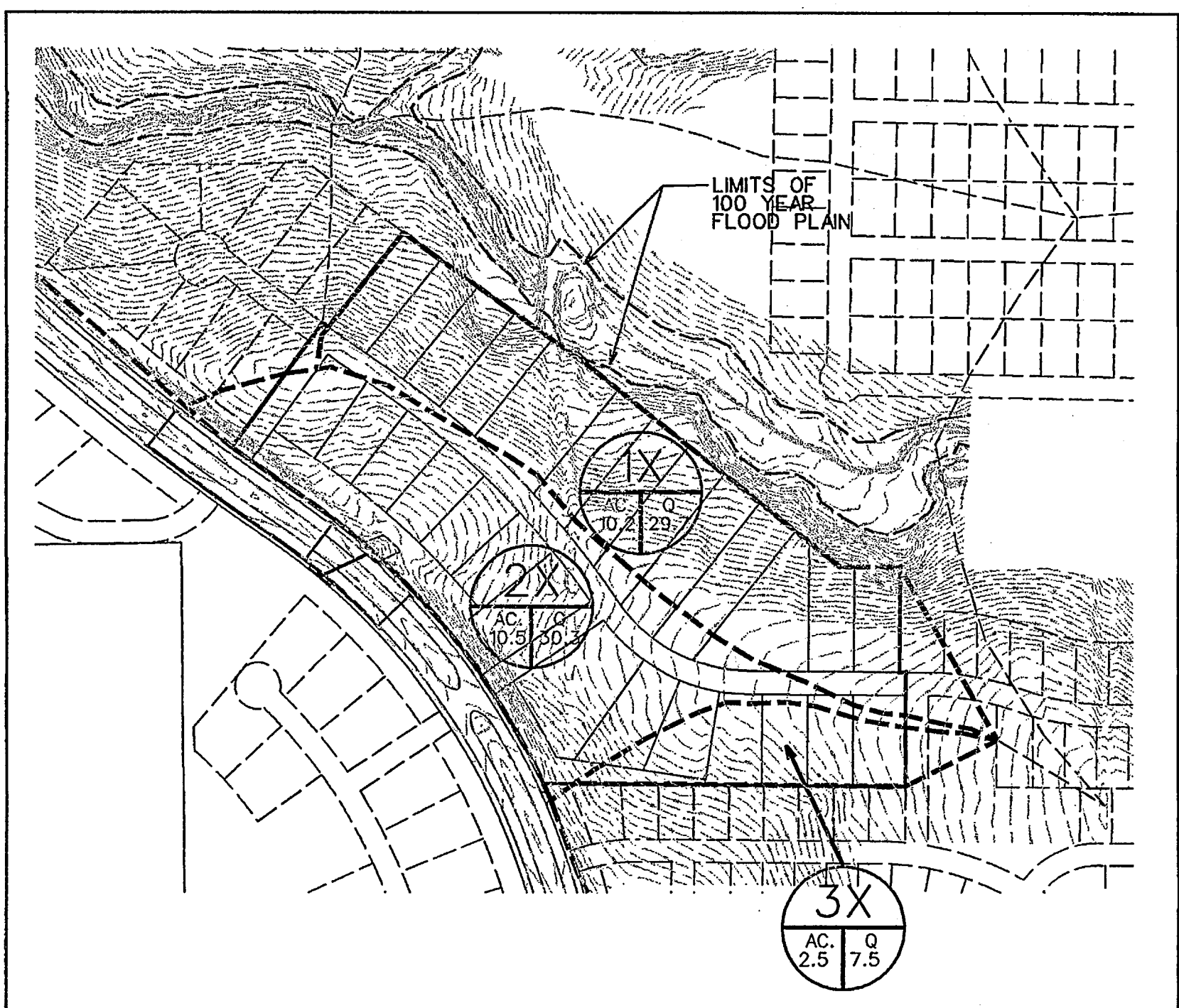
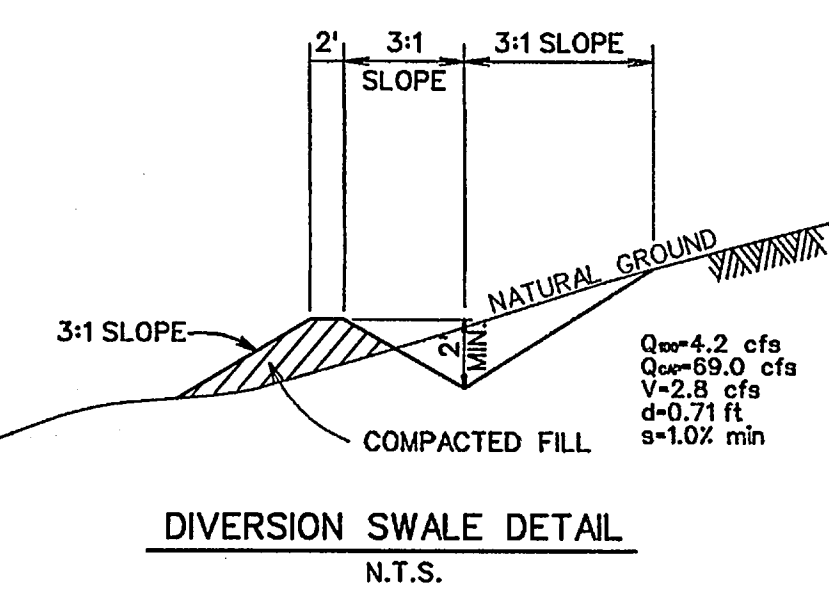
LEGEND

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

SCALE: 1" = 100'

RUNOFF COMPUTATIONS

Area #	Area (sf)	Area (acres)	Runoff Coefficient	Tc (min)	I(100) (in/hr)	Q(100) (cfs)
1	78810	1.81	0.50	10	9.8	8.9
2	139420	3.20	0.50	10	9.8	15.7
3	236743	5.43	0.50	10	9.8	26.6
4	20483	0.47	0.50	10	9.8	2.3
5	385067	8.84	0.50	10	9.8	43.3
6	83881	1.93	0.50	10	9.8	9.4



PRE-DEVELOPMENT DRAINAGE AREA MAP
1" = 300'



The seal appearing on this document was authorized by Brandon Davidson P.E. 87682, on June 25, 2013

AS-BUILT APRIL 2014
INFORMATION PROVIDED BY CONTRACTORS
(NOT FIELD VERIFIED)

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

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

DRAINAGE AREA MAP

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE	3 of 18
12003	APRIL 2013	1"=100'	

OUTLET CONTROL

Line	Flow (cfs)	Pipe Size (in)	Number of Barrels	Area (sf)	Velocity (fps)	Head (ft)	Hydraulic Slope (ft/ft)	Outlet Flowline (ft)	Starting Tailwater (ft)	Length (ft)	Headwater Elevation (ft)
D-1	2.3	18	1	1,767.1	1.3	0.03	0.0005	499.50	501.00	60	501.04
D-2	15.7	24	2	3,141.6	2.5	0.10	0.0012	500.50	502.50	63	502.62

INLET CONTROL

Line	Flow (cfs)	Pipe Size (in)	Number of Barrels	Area (sf)	Headwater Required (ft)	Inlet Flowline (ft)	Headwater Elevation (ft)
D-1	2.3	18	1	1,767.1	0.07	499.74	500.56
D-2	15.7	24	2	3,141.6	0.27	500.76	502.02

Inlet Control vs. Outlet Control

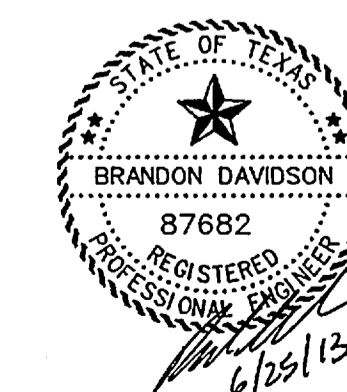
Line	Elevation		Governing Control	Headwater Elevation
	Outlet Control	Inlet Control		
D-1	501.04	500.56	Outlet Control	501.04
D-2	502.62	502.02	Outlet Control	502.62

DRIVEWAY CULVERT CALCULATIONS

Block	Lot	Receives Drainage		Flow (cfs)	Ditch Slope	Pipe Size (in)	No. of Barrels	Area (sf)	Full Flow Velocity (fps)	Head (ft)	Hydraulic Slope (ft/ft)	Outlet Flowline (ft)	Starting Tailwater (ft)	Length (ft)	Headwater Elevation (ft)	Upstream Soft Elev. (ft)	INLET CONTROL		Inlet or Outlet Control?	US vs. Soffit Elev. (ft)		
		From Lots	Area (sf)														Headwater Required (ft)	Inlet Flowline (ft)				
C	7	7	25075	2.9	1.00%	18	1	1,767.1	1.5	0.04	0.0008	0.00	1.50	28	1.54	1.76	0.12	0.28	1.15	Outlet Control	1.54	-0.24
C	6	6-7	48376	5.4	1.00%	18	1	1,767.1	3.1	0.15	0.0027	0.00	1.50	28	1.65	1.78	0.41	0.28	1.44	Outlet Control	1.65	-0.13
C	5	5-7	70875	6.0	1.95%	21	1	2,403.3	3.3	0.17	0.0025	0.00	1.75	28	1.91	2.30	0.47	0.55	1.89	Outlet Control	1.91	-0.39
C	4	4-7	95202	10.7	1.95%	18	2	1,767.1	3.0	0.14	0.0026	0.00	1.50	28	1.84	2.05	0.40	0.55	1.89	Outlet Control	1.89	-0.35
C	3	3-7	123469	13.9	1.95%	21	2	2,403.3	2.9	0.13	0.0019	0.00	1.75	28	1.87	2.30	0.36	0.55	1.78	Outlet Control	1.87	-0.43
C	2	2-7	140452	15.8	1.95%	21	2	2,403.3	3.3	0.17	0.0025	0.00	1.75	28	1.90	2.30	0.47	0.55	1.89	Outlet Control	1.90	-0.39
C	1	1-7	152372	17.1	1.95%	21	2	2,403.3	3.6	0.20	0.0029	0.00	1.75	28	1.93	2.30	0.55	0.55	1.97	Outlet Control	1.97	-0.33
A	23	23	11360	1.3	1.00%	18	1	1,767.1	0.7	0.01	0.0001	0.00	1.50	28	1.51	1.76	0.02	0.28	1.05	Outlet Control	1.51	-0.27
A	22	22-23	21850	2.5	1.00%	18	1	1,767.1	1.4	0.03	0.0005	0.00	1.50	28	1.53	1.76	0.08	0.28	1.11	Outlet Control	1.53	-0.25
A	21	21-23	46982	5.3	1.95%	18	1	1,767.1	3.0	0.14	0.0025	0.00	1.50	28	1.64	2.05	0.39	0.55	1.68	Outlet Control	1.68	-0.36
A	20	20-23	58225	6.5	1.95%	18	1	1,767.1	3.7	0.21	0.0039	0.00	1.50	28	1.72	2.05	0.59	0.55	1.89	Outlet Control	1.89	-0.16
A	19	19-23	70994	8.0	1.95%	21	1	2,403.3	3.3	0.17	0.0025	0.00	1.75	28	1.91	2.30	0.47	0.55	1.90	Outlet Control	1.91	-0.38
A	18	18-23	81449	9.2	1.00%	21	1	2,403.3	3.8	0.23	0.0033	0.00	1.75	28	1.96	2.03	0.63	0.28	1.79	Outlet Control	1.96	-0.07
A	17	17-23	86050	9.9	1.00%	21	1	2,403.3	4.1	0.26	0.0039	0.00	1.75	28	1.99	2.03	0.73	0.28	1.89	Outlet Control	1.99	-0.04
A	16	16-23	93243	10.5	1.00%	21	1	2,403.3	4.4	0.30	0.0044	0.00	1.75	28	2.02	2.03	0.82	0.28	1.98	Outlet Control	2.02	-0.01

Inlet Control vs. Outlet Control

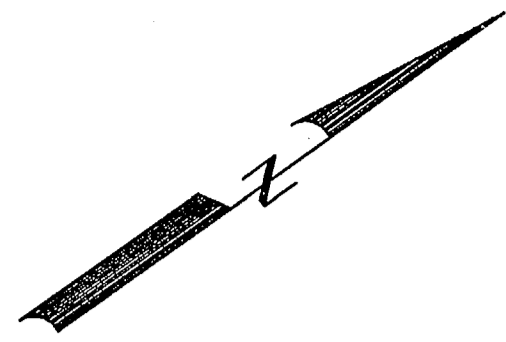
Block	Lot	Elevation		Governing Control	Headwater Elevation
		Outlet Control	Inlet Control		
C	7	1.54	1.15	Outlet Cont.	1.54
C	6	1.65	1.44	Outlet Cont.	1.65
C	5	1.91	1.89	Outlet Cont.	1.91
C	4	1.84	1.69	Inlet Control	1.69
C	3	1.87	1.78	Outlet Cont.	1.87
C	2	1.90	1.89	Outlet Cont.	1.90
C	1	1.93	1.97	Inlet Control	1.97
A	23	1.51	1.05	Outlet Cont.	1.51
A	22	1.53	1.11	Outlet Cont.	1.53
A	21	1.64	1.68	Inlet Control	1.68
A	20	1.72	1.99	Inlet Control	1.99
A	19	1.91	1.90	Outlet Cont.	1.91
A	18	1.96	1.79	Outlet Cont.	1.96
A	17	1.99	1.89	Outlet Cont.	1.99
A	16	2.02	1.98	Outlet Cont.	2.02



The seal appearing on this document was authorized by Brandon Davidson P.E. 87682, on June 25, 2013

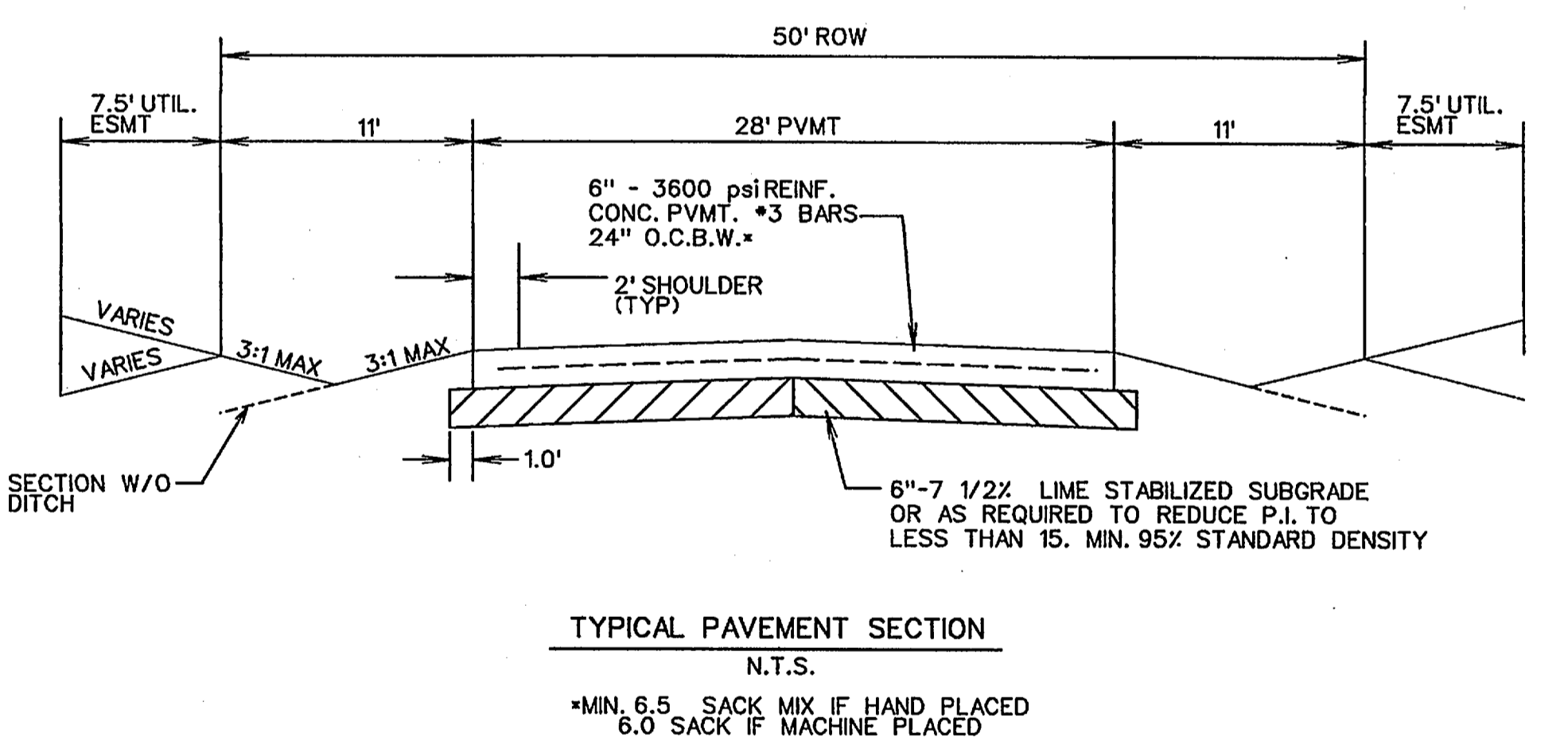
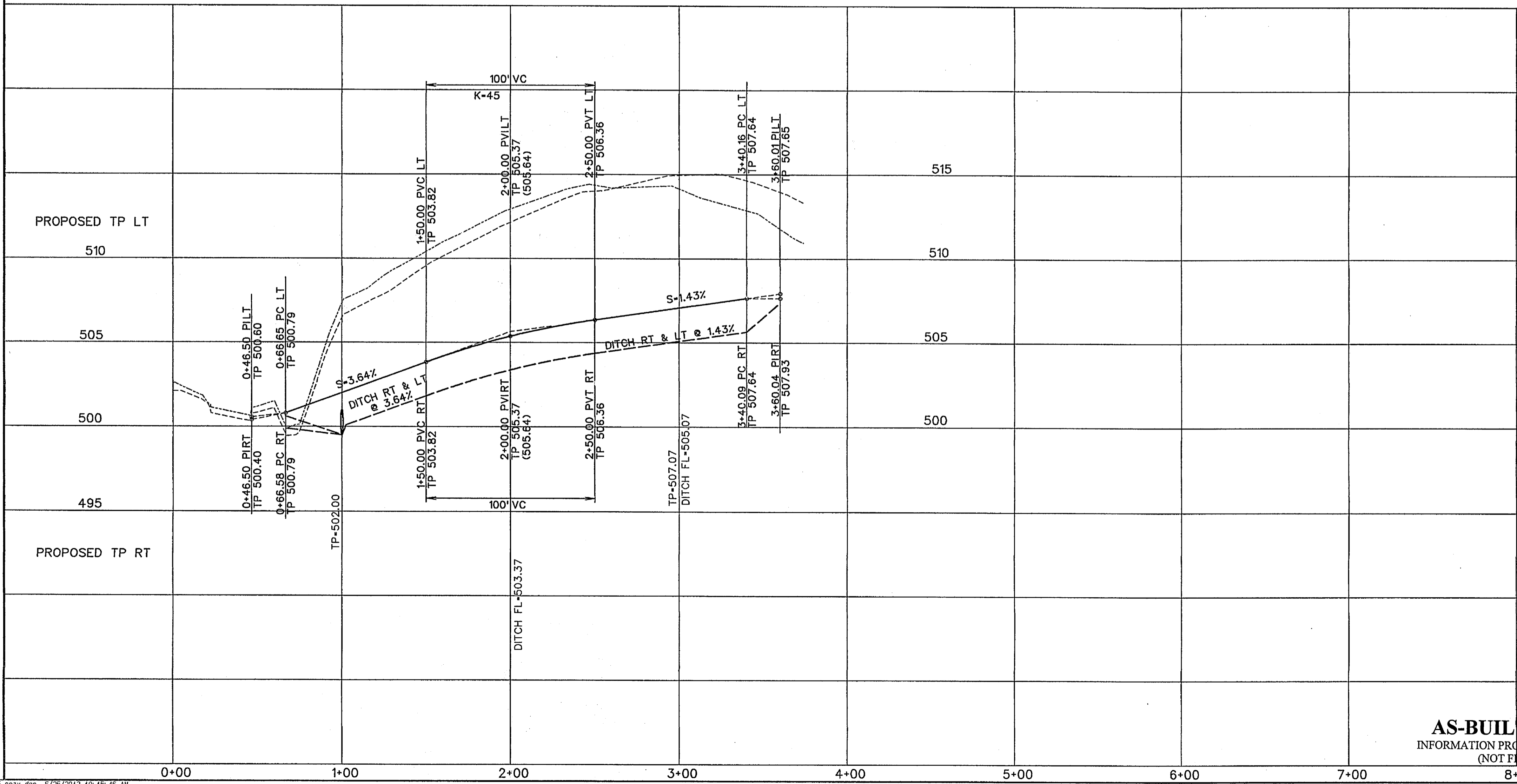
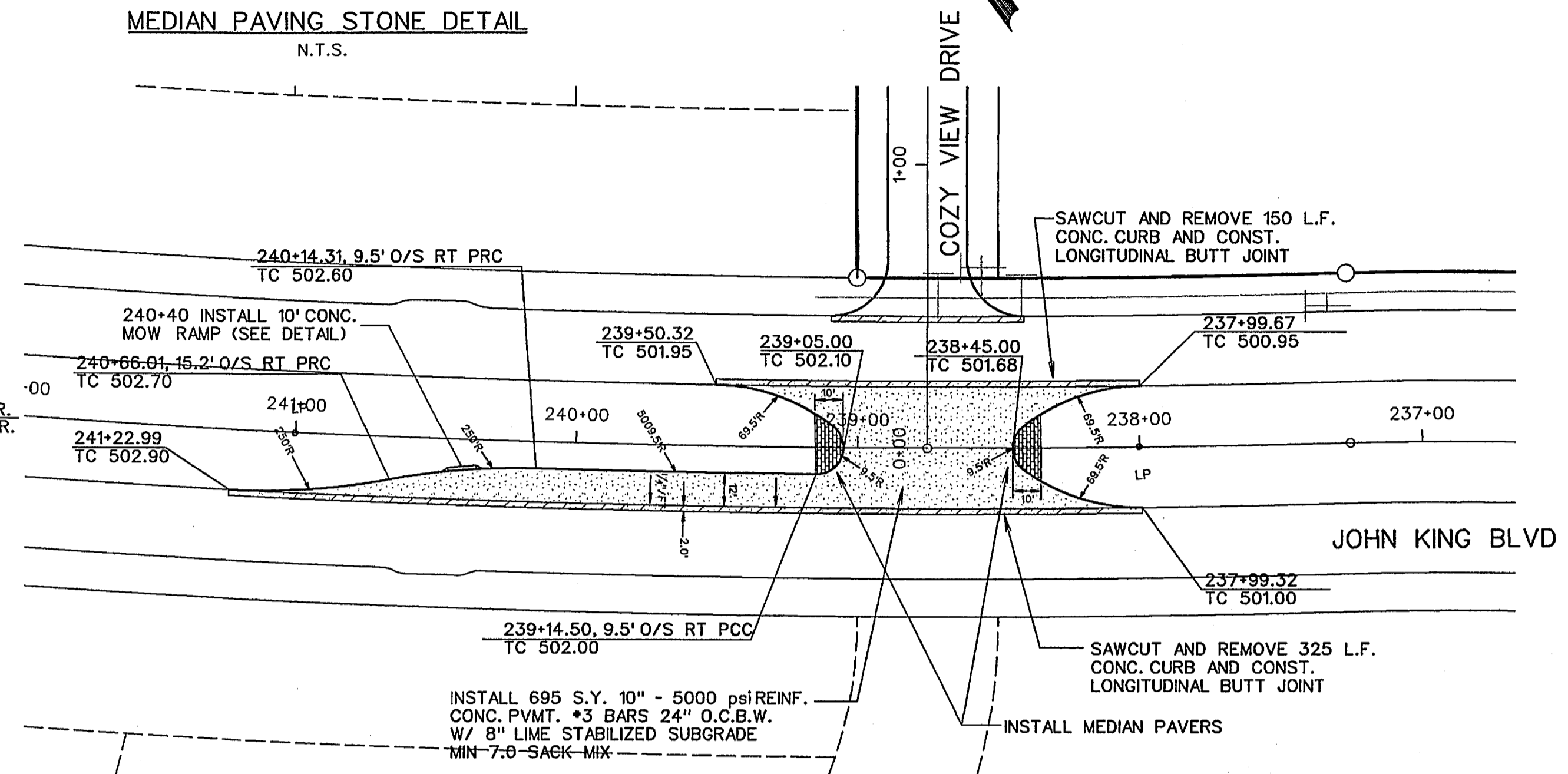
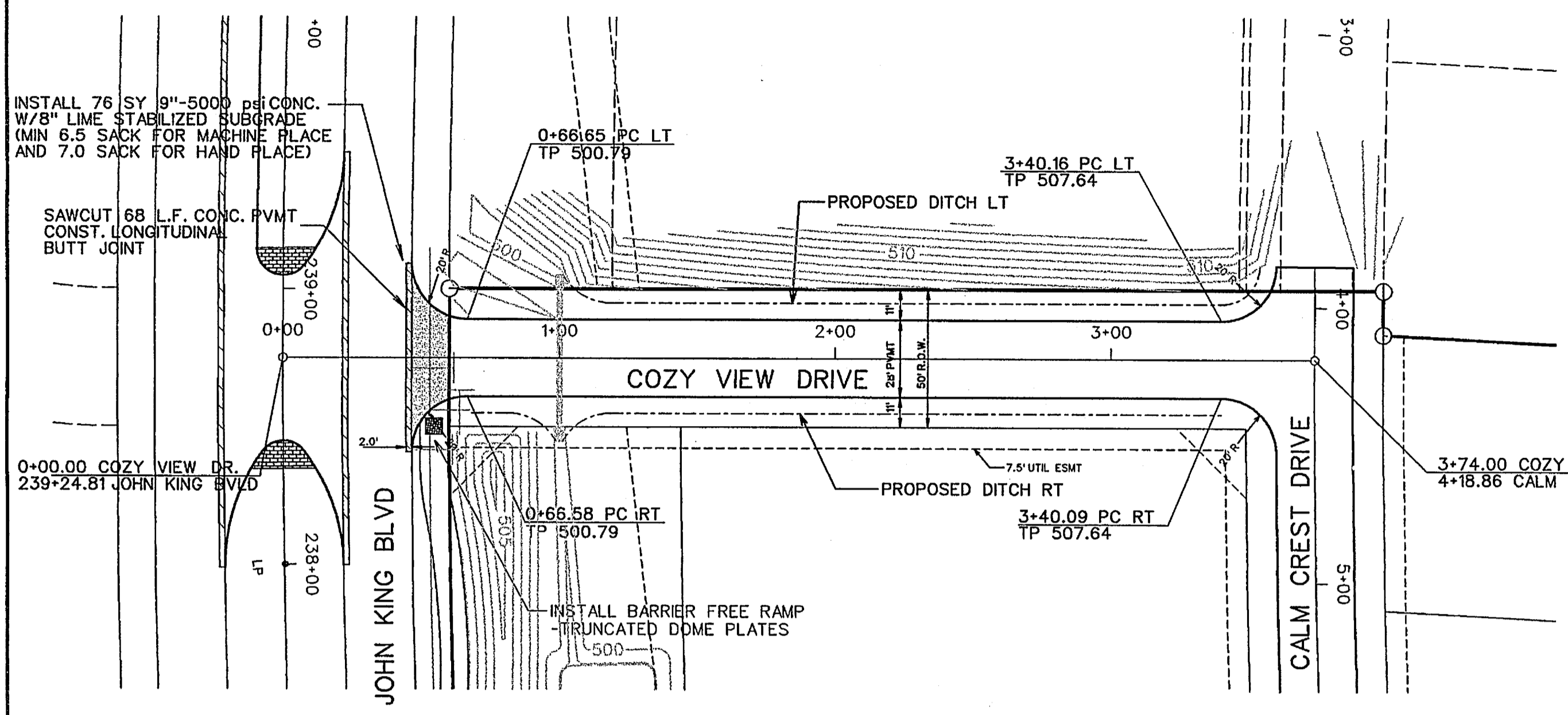
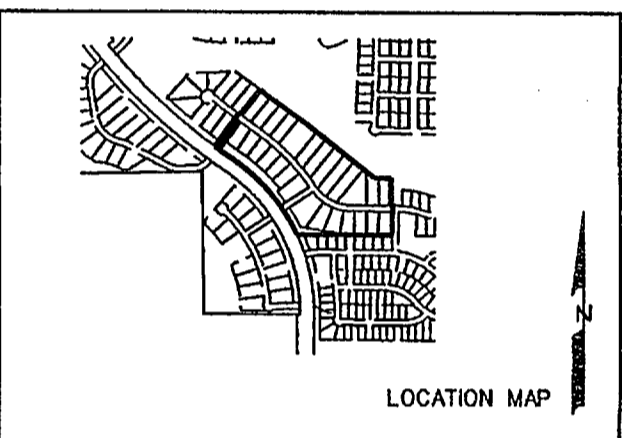
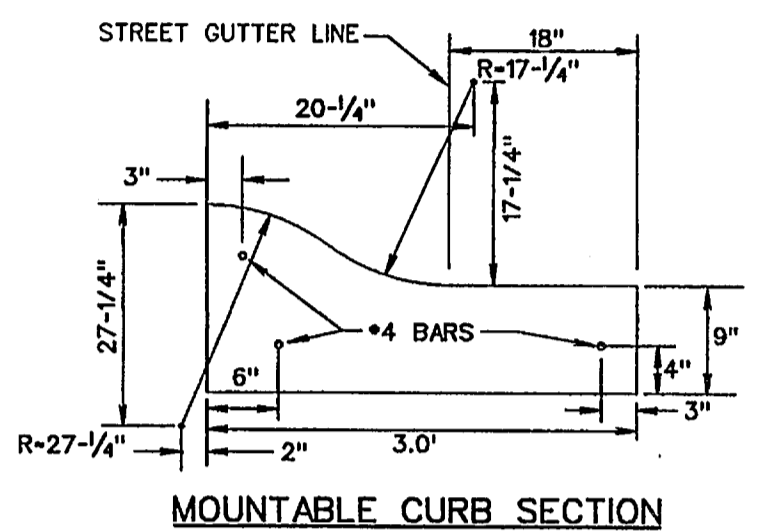
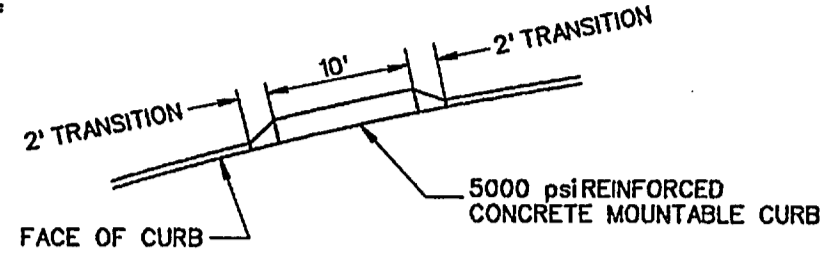
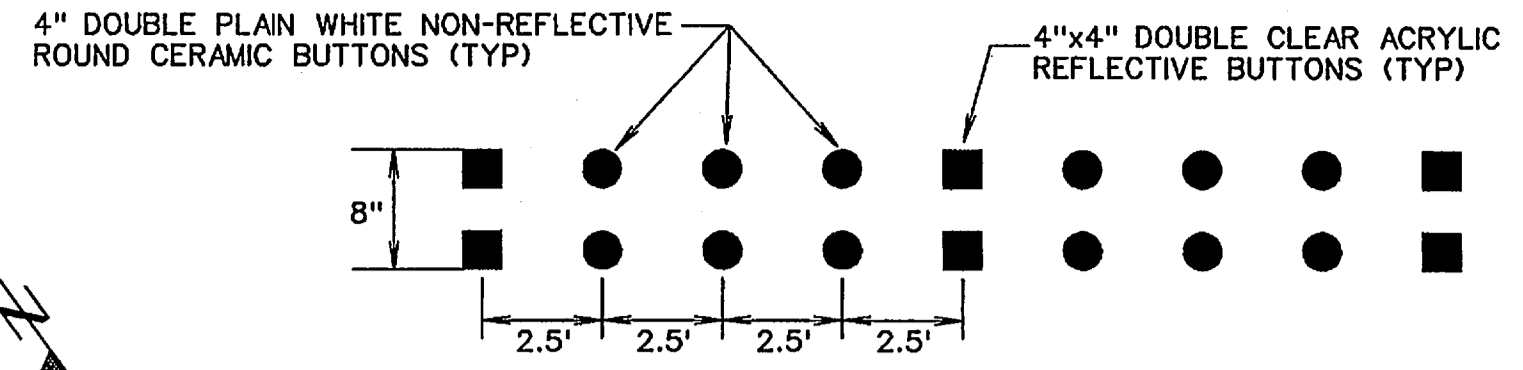
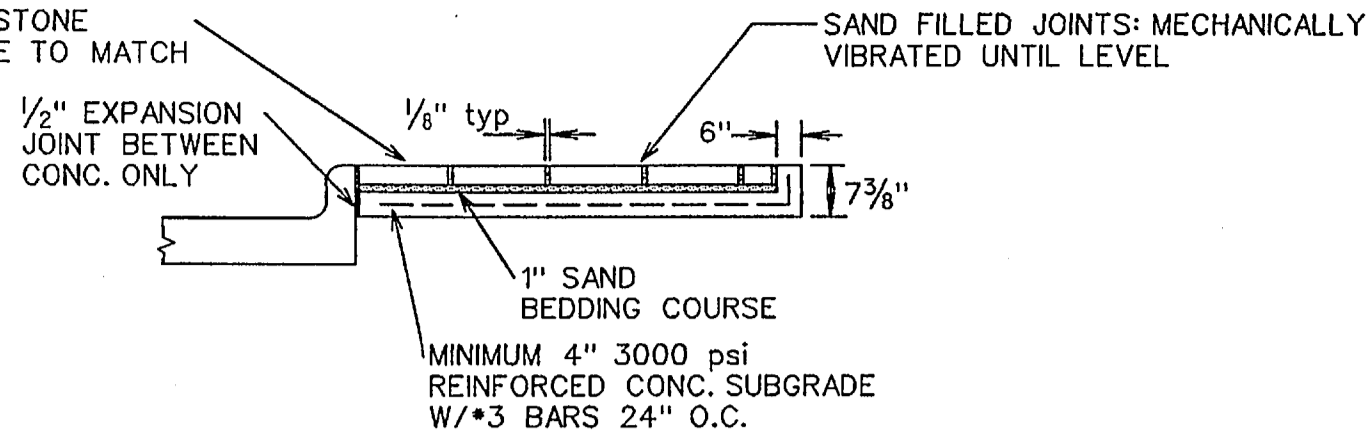
AS-BUILT APRIL 2014
 INFORMATION PROVIDED BY CONTRACTORS
 (NOT FIELD VERIFIED)

CORWIN ENGINEERING, INC. 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972) 396-1200 TBPE FIRM #5951			
DEVELOPMENT PLANS FOR BREEZY HILL PHASE I ROCKWALL, TEXAS			
DRAINAGE CALCULATIONS			
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE:	4 OF 18
12003	APRIL 2013	1"=100'	



SCALE: 1" = 40'

2-3/8" PAVING STONE
FINISHED GRADE TO MATCH
TOP OF CURB



The seal appearing on this document was authorized by Warren L. Corwin, P.E. 57875, on June 25, 2013

AS-BUILT APRIL 2014
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 I
ROCKWALL, TEXAS

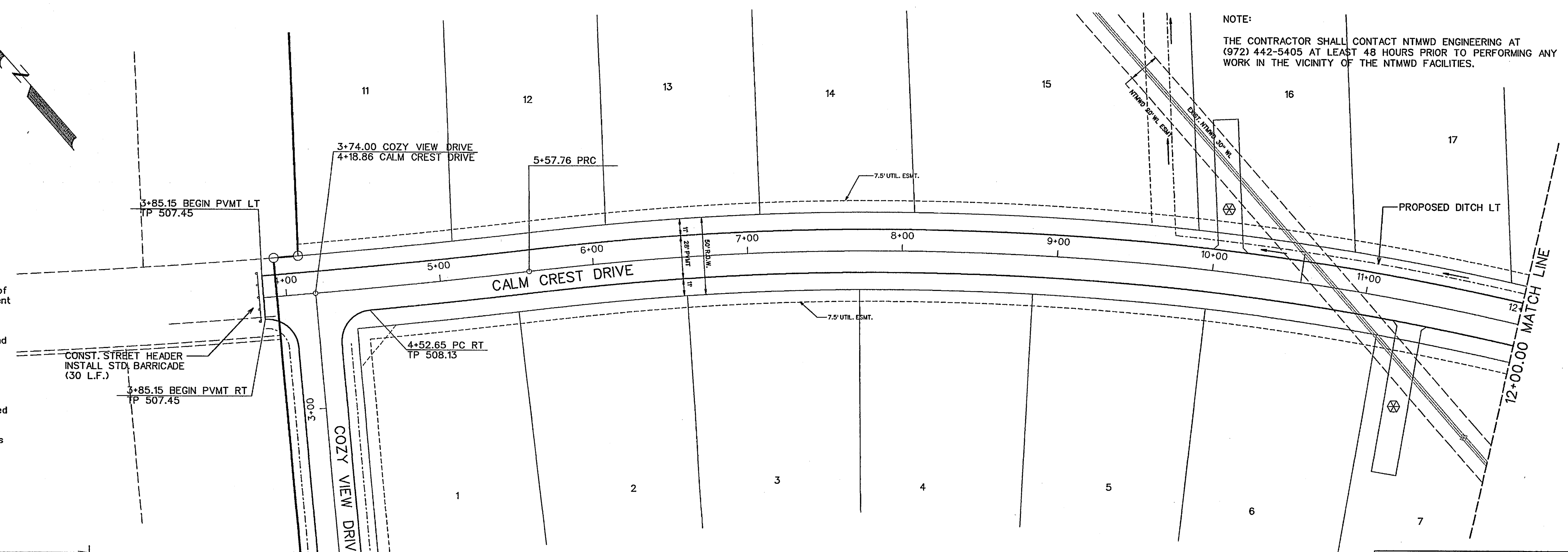
COZY VIEW DRIVE

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
J2003	OCTOBER 2012	SCALE: HOR: 1"=40' VER: 1"=4'	5 of 18

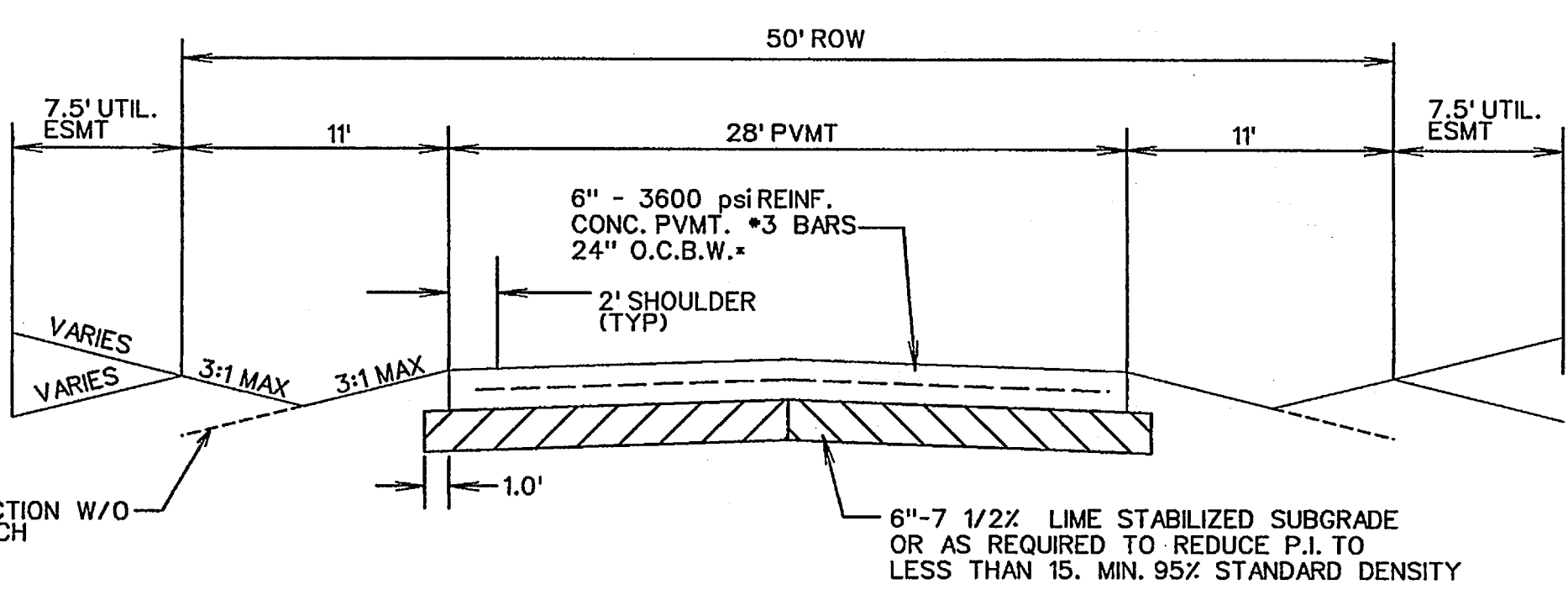
SCALE: 1" = 40'

NOTES FOR CONSTRUCTION WITH THE NORTH TEXAS MUNICIPAL WATER DISTRICT EASEMENT

- A. North Texas Municipal Water District's (NTMWD's) easement 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. Unless otherwise shown or required a minimum of one-foot clearance shall be provided for all utilities crossing the NTMWD pipelines.
- 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.



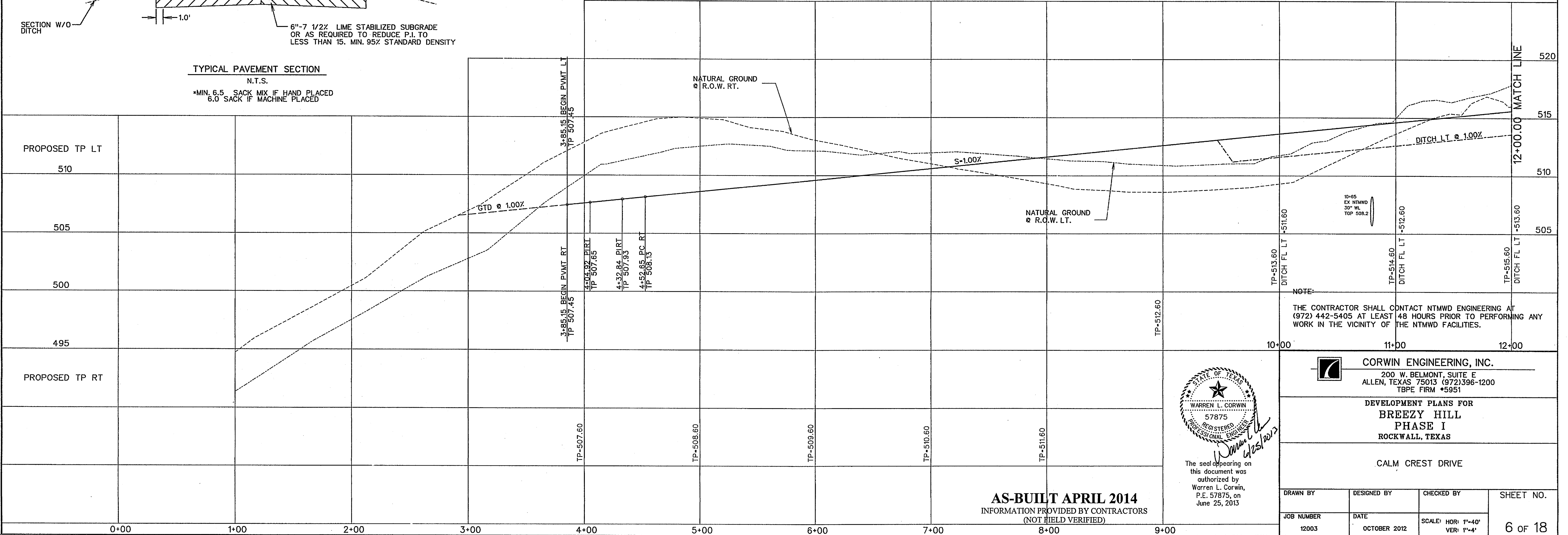
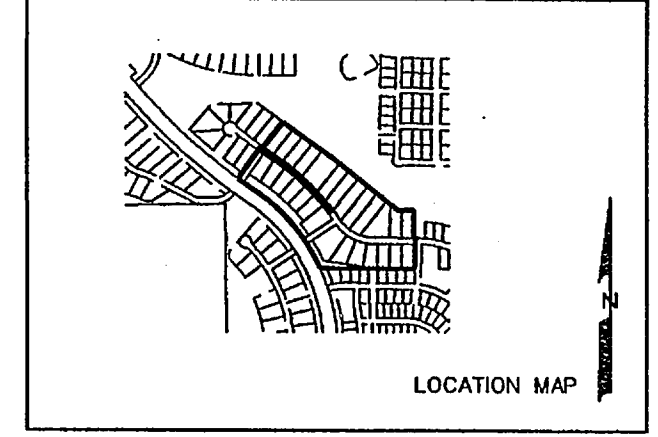
NOTE:
THE CONTRACTOR SHALL CONTACT NTMWD ENGINEERING AT (972) 442-5405 AT LEAST 48 HOURS PRIOR TO PERFORMING ANY WORK IN THE VICINITY OF THE NTMWD FACILITIES.



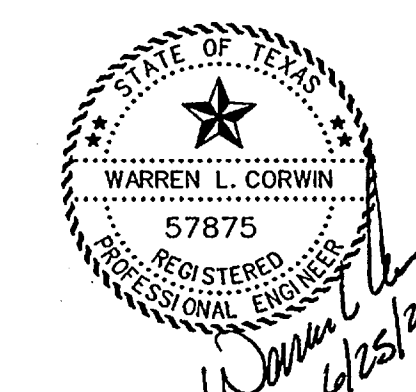
TYPICAL PAVEMENT SECTION
N.T.S.
*MIN. 6.5 SACK MIX IF HAND PLACED
6.0 SACK IF MACHINE PLACED

NOTE: DRIVEWAY LOCATION APPROVAL NEEDED BY NTMWD.

NOTE: CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. EXISTING UTILITY LOCATION AND ELEVATION ARE BASED ON AS-BUILT DRAWINGS AND MAY DIFFER IN ACTUAL LOCATION AND ELEVATION.



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.



The seal appearing on this document was authorized by Warren L. Corwin, P.E. 57875, on June 25, 2013

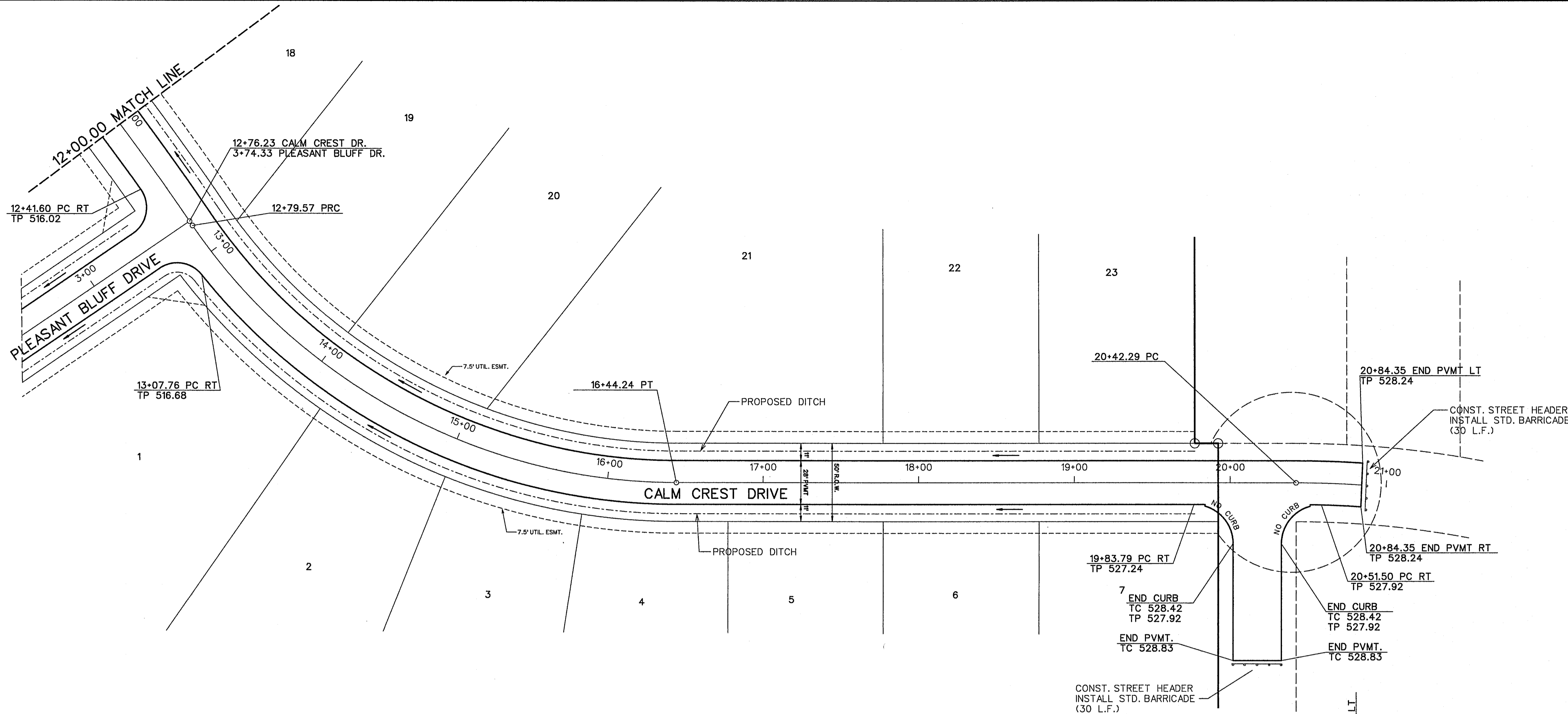
AS-BUILT APRIL 2014
INFORMATION PROVIDED BY CONTRACTORS
(NOT FIELD VERIFIED)

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

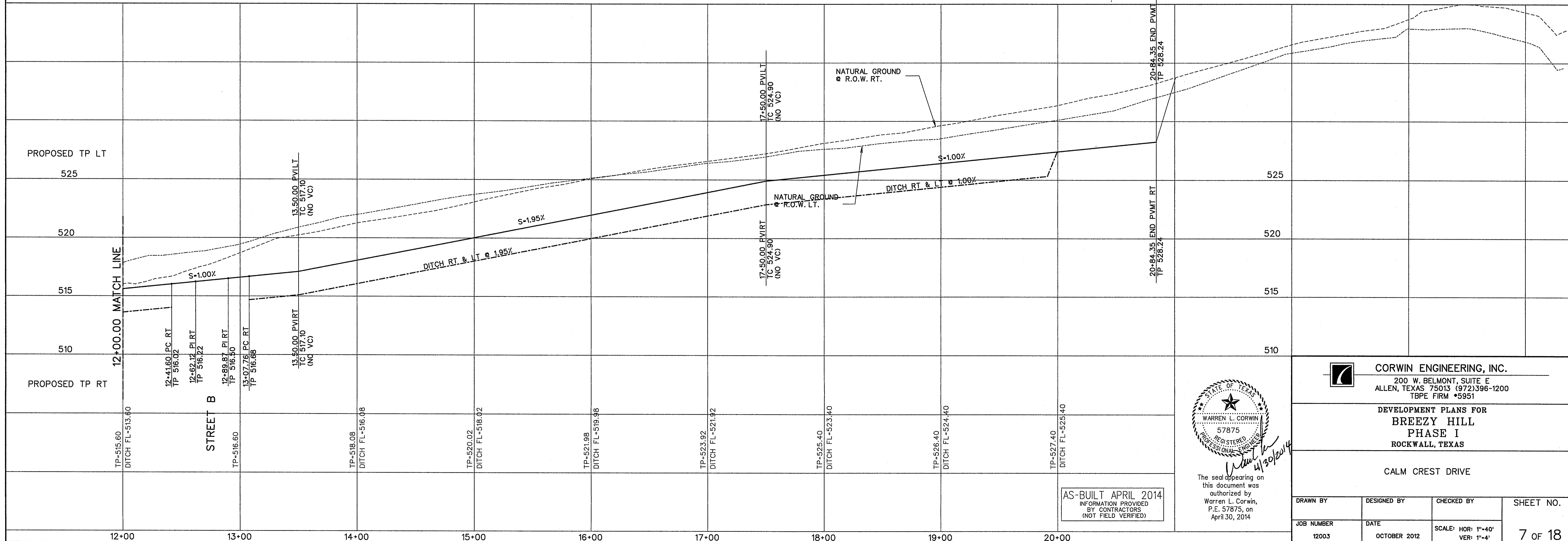
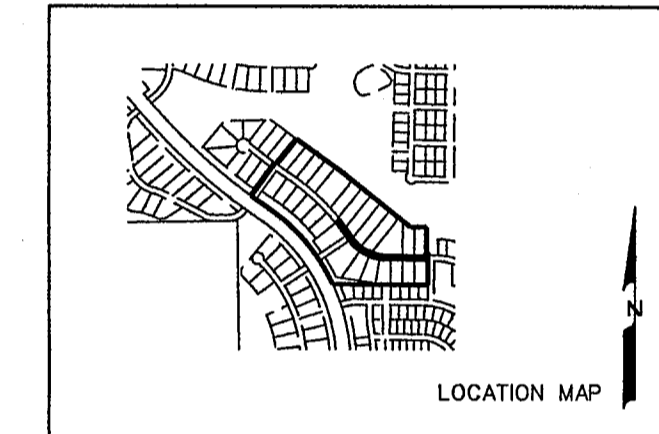
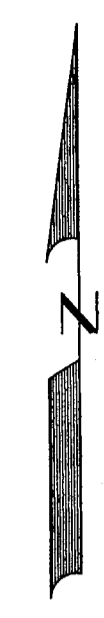
DEVELOPMENT PLANS FOR
BREEZY HILL
PHASE I
ROCKWALL, TEXAS

CALM CREST DRIVE

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
12003	OCTOBER 2012	SCALE: HOR: 1"=40' VER: 1"=4'	6 OF 18

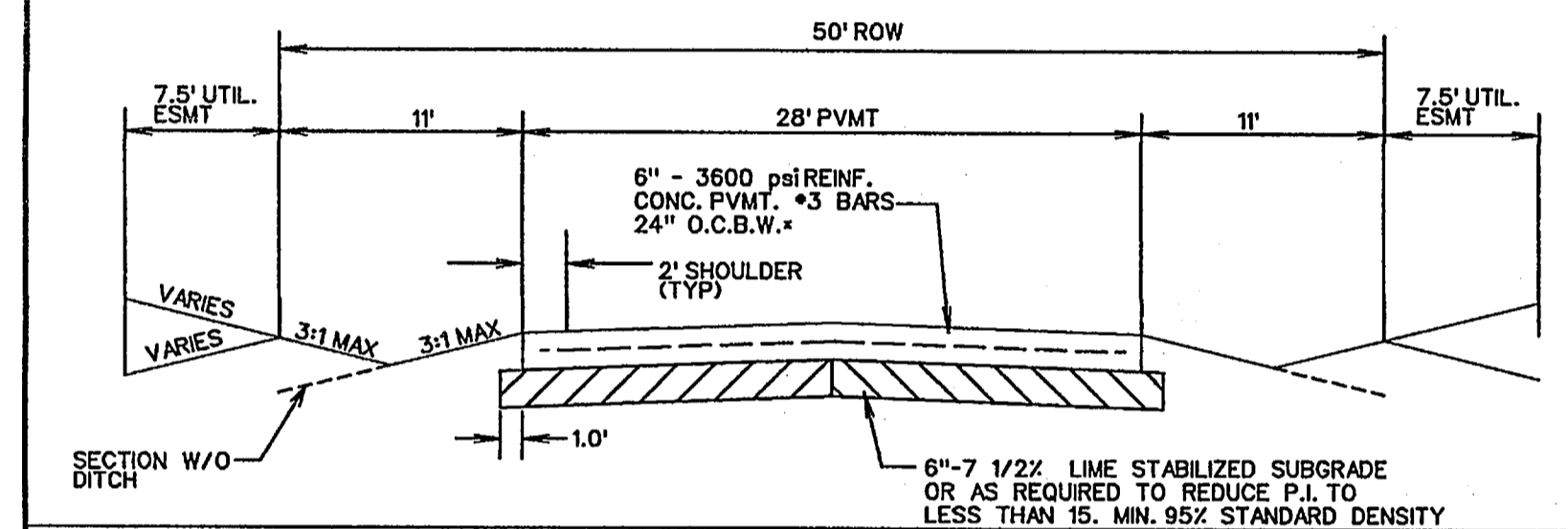
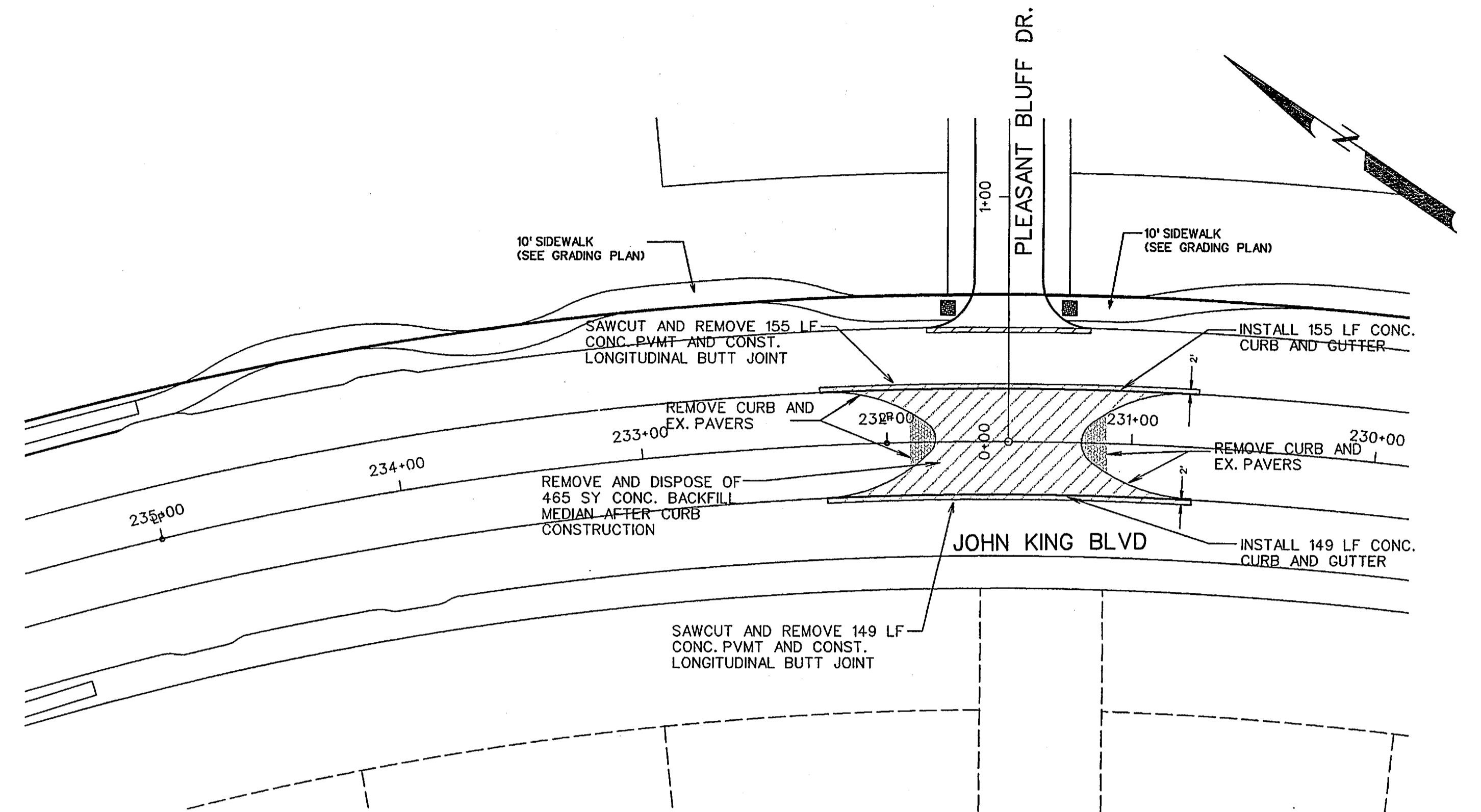
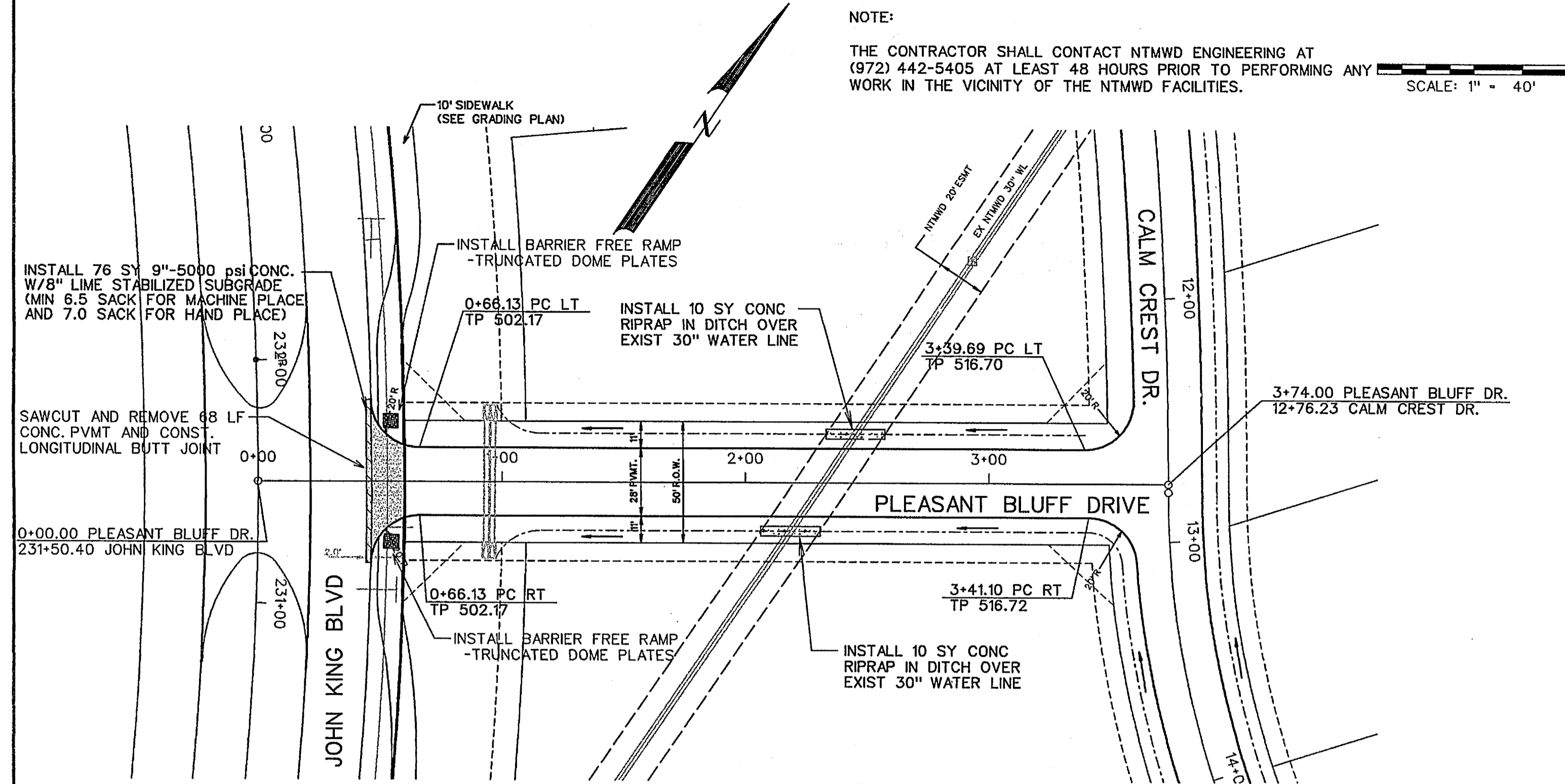


SCALE: 1" = 40'

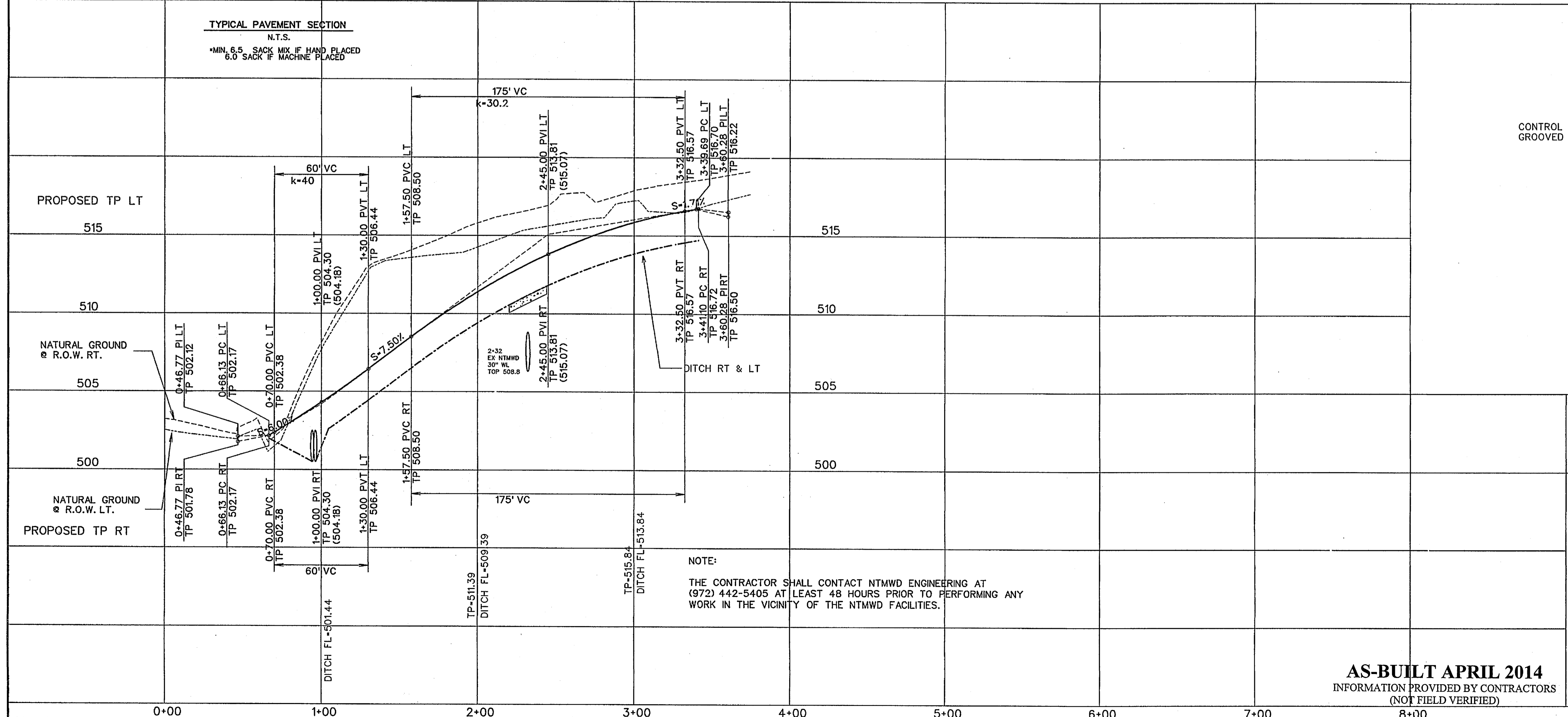
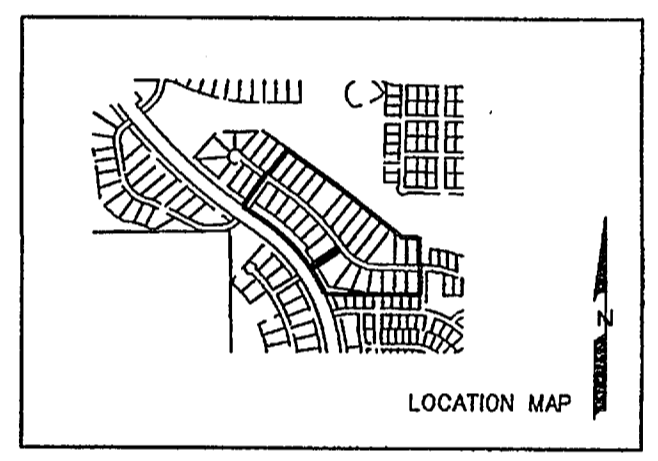


NOTE:
 THE CONTRACTOR SHALL CONTACT NTMWD ENGINEERING AT (972) 442-5405 AT LEAST 48 HOURS PRIOR TO PERFORMING ANY WORK IN THE VICINITY OF THE NTMWD FACILITIES.

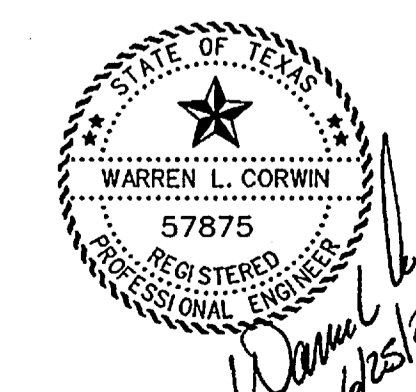
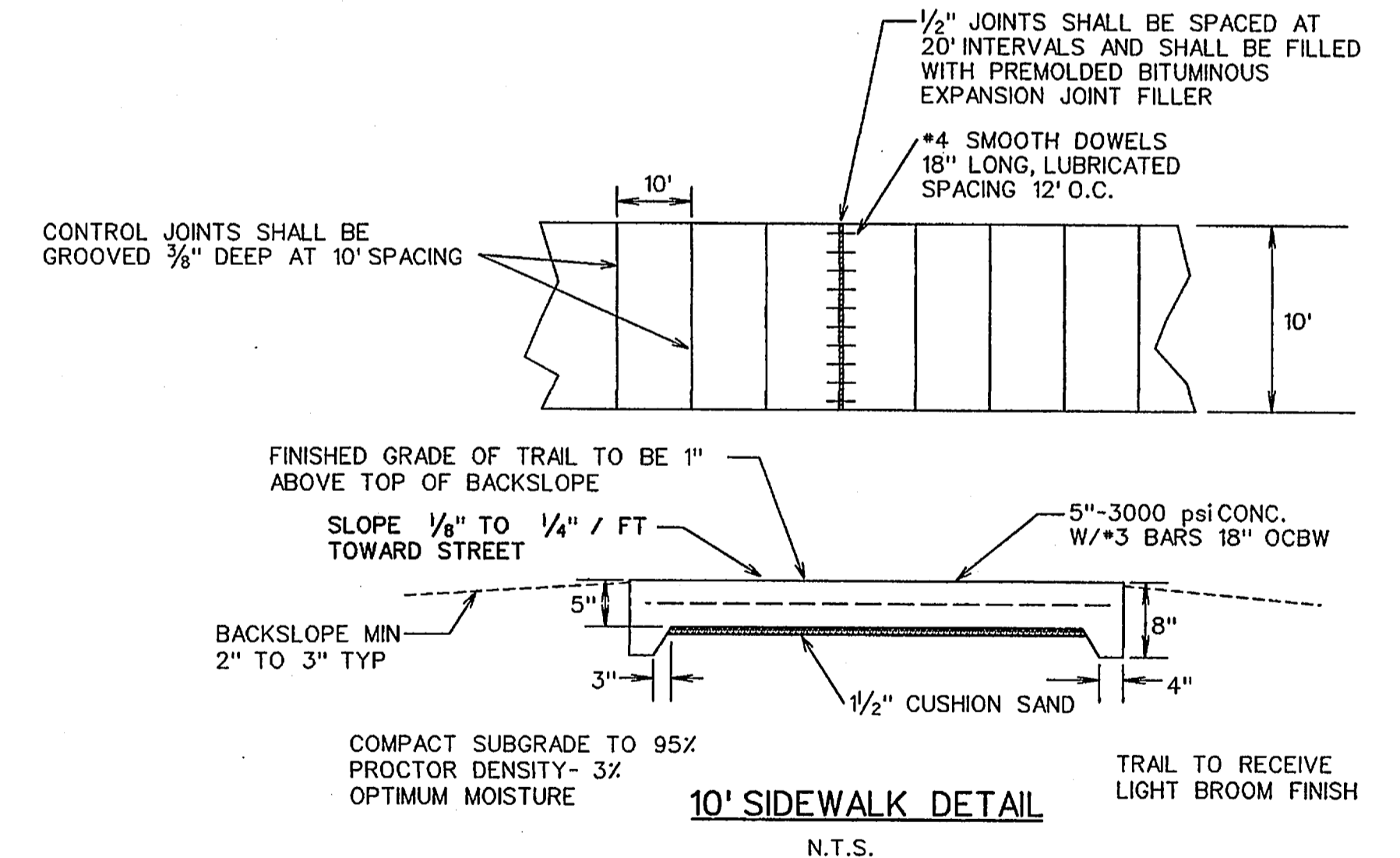
SCALE: 1" = 40'



NOTE:
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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.



The seal appearing on this document was authorized by Warren L. Corwin, P.E. 57875, on June 25, 2013

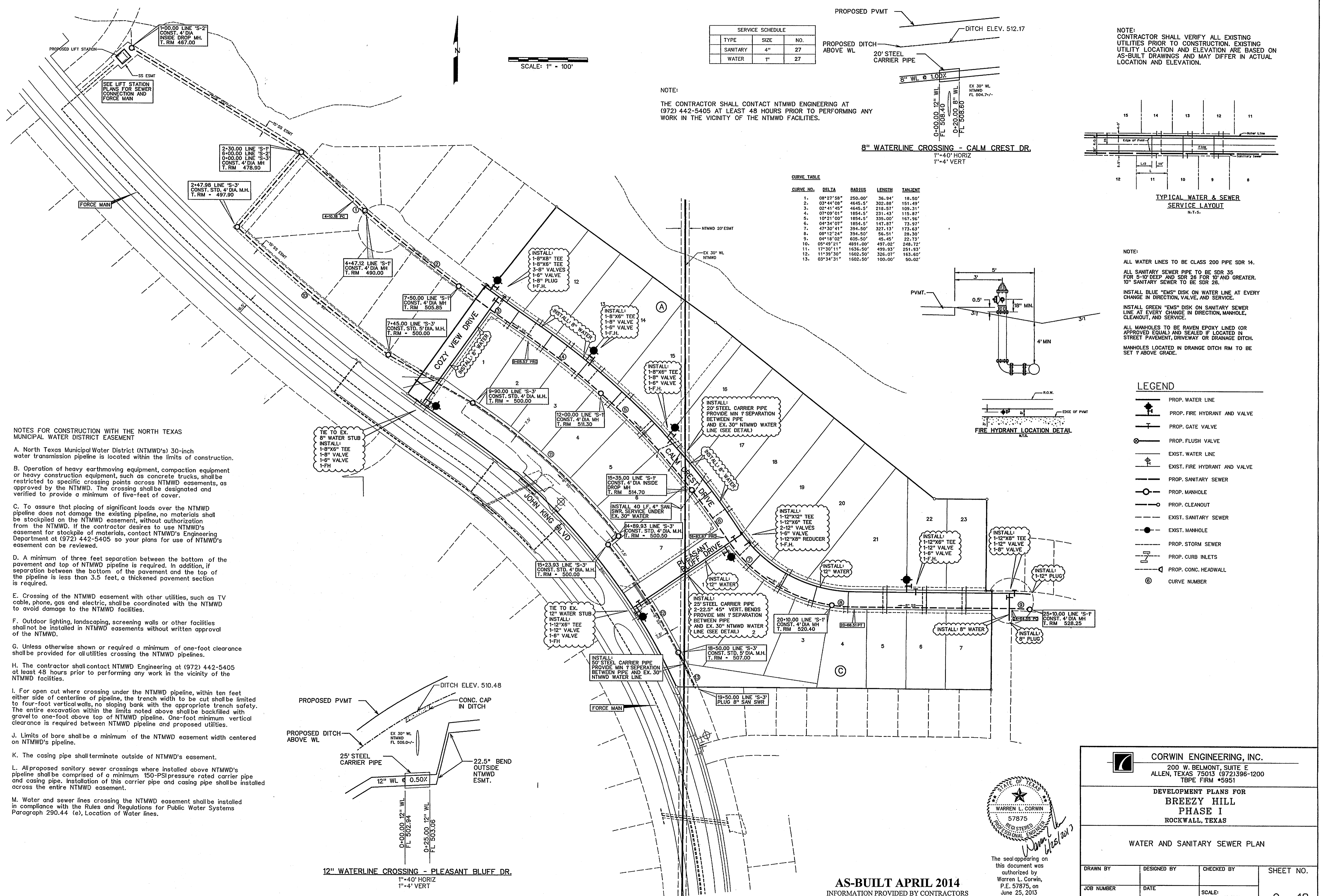
CORWIN ENGINEERING, INC.
 200 W. BELMONT, SUITE E
 ALLEN, TEXAS 75013 (972) 396-1200
 TYPE FIRM #5951

DEVELOPMENT PLANS FOR
BREEZY HILL
 PHASE I
 ROCKWALL, TEXAS

PLEASANT BLUFF DRIVE

AS-BUILT APRIL 2014
 INFORMATION PROVIDED BY CONTRACTORS
 (NOT FIELD VERIFIED)

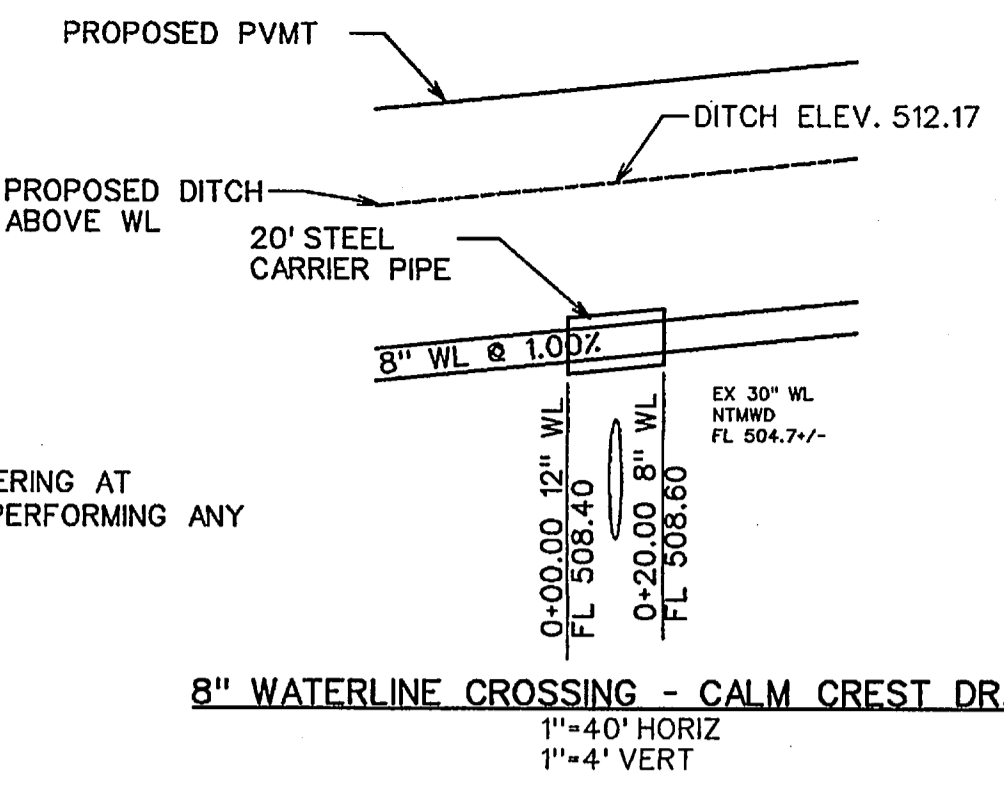
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
J2003	OCTOBER 2012	SCALE: HOR: 1"=40' VER: 1"=4'	8 OF 18



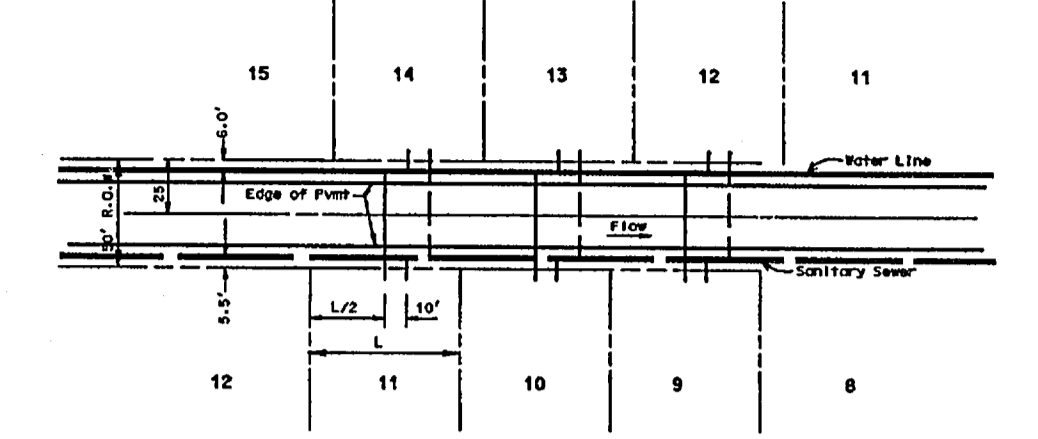
SERVICE SCHEDULE		
TYPE	SIZE	NO.
SANITARY	4"	27
WATER	1"	27

SCALE: 1" = 100'

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.



CURVE NO.	DELTA	RADIUS	LENGTH	TANGENT
1.	08°27'58"	250.00'	36.94'	18.50'
2.	03°44'08"	4645.5'	302.88'	151.49'
3.	02°41'45"	4645.5'	218.57'	109.31'
4.	07°09'01"	1854.5'	231.43'	115.87'
5.	10°21'00"	1854.5'	335.00'	167.96'
6.	04°34'07"	1854.5'	147.87'	73.97'
7.	47°30'41"	394.50'	327.13'	173.63'
8.	08°12'24"	394.50'	56.51'	28.30'
9.	04°18'02"	605.50'	45.45'	22.73'
10.	05°49'21"	4891.00'	497.02'	248.72'
11.	17°30'11"	1636.50'	499.93'	251.83'
12.	11°39'30"	1602.50'	326.07'	163.60'
13.	03°34'31"	1602.50'	100.00'	50.02'



NOTE:
CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. EXISTING UTILITY LOCATION AND ELEVATION ARE BASED ON AS-BUILT DRAWINGS AND MAY DIFFER IN ACTUAL LOCATION AND ELEVATION.

TYPICAL WATER & SEWER SERVICE LAYOUT

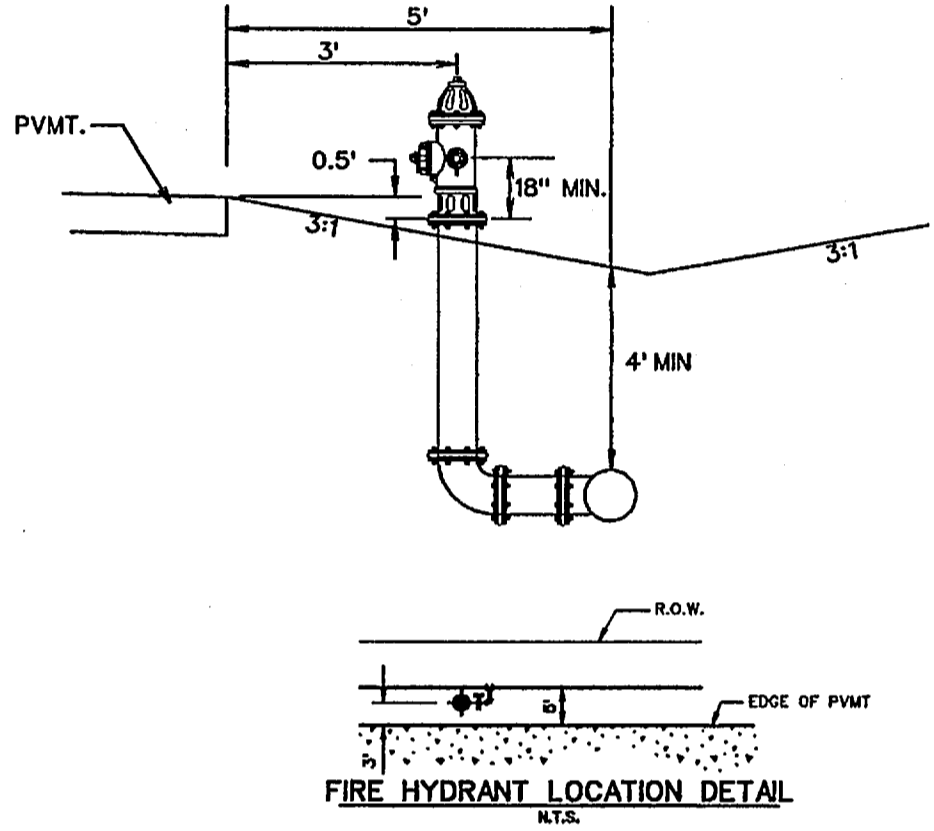
NOTE:
ALL WATER LINES TO BE CLASS 200 PIPE SDR 14.
ALL SANITARY SEWER PIPE TO BE SDR 35 FOR 5'-10" DEEP AND SDR 26 FOR 10' AND GREATER. 10" SANITARY SEWER TO BE SDR 26.

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

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

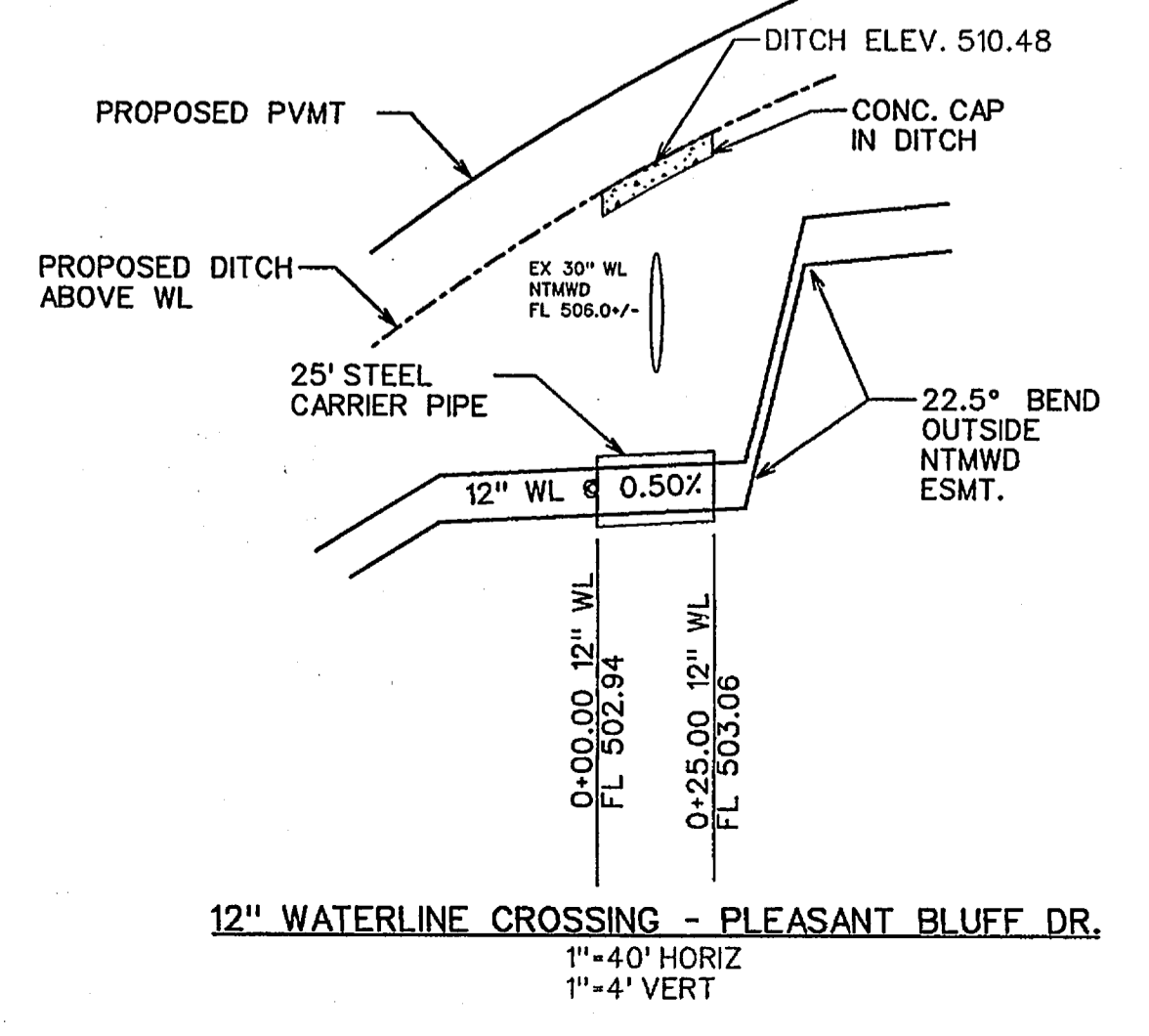
LEGEND

- 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
- ⊙ CURVE NUMBER



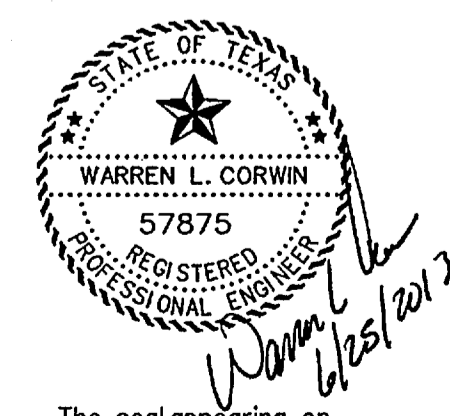
NOTES FOR CONSTRUCTION WITH THE NORTH TEXAS MUNICIPAL WATER DISTRICT EASEMENT

- 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. Unless otherwise shown or required a minimum of one-foot clearance shall be provided for all utilities crossing the NTMWD pipelines.
- 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.



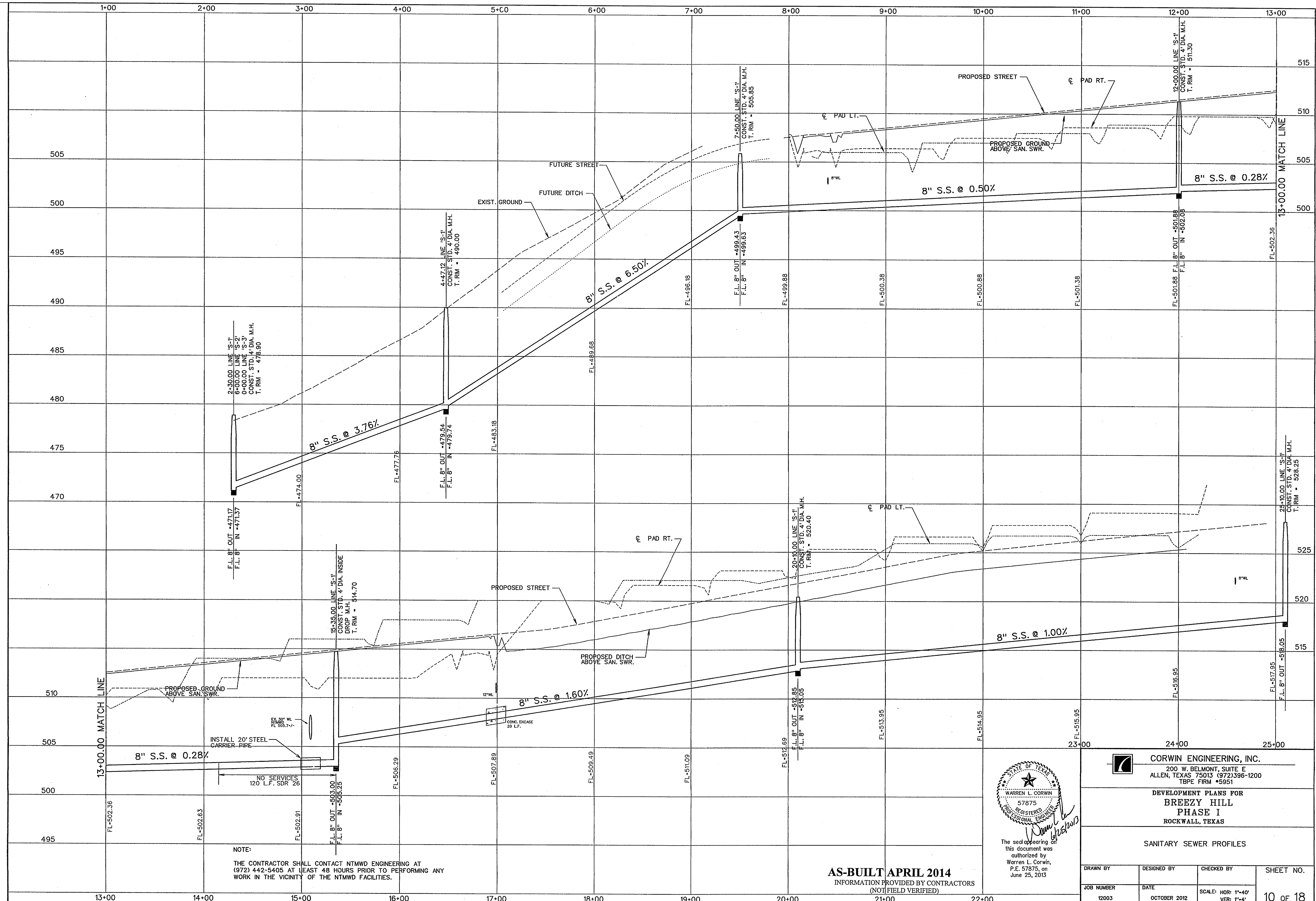
12" WATERLINE CROSSING - PLEASANT BLUFF DR.
1"=40' HORIZ
1"=4' VERT

AS-BUILT APRIL 2014
INFORMATION PROVIDED BY CONTRACTORS
(NOT FIELD VERIFIED)



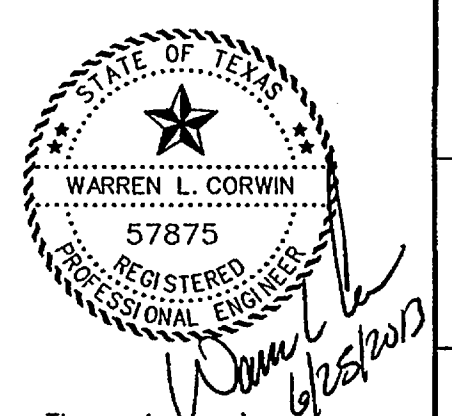
The seal appearing on this document was authorized by Warren L. Corwin, P.E. 57875, on June 25, 2013

CORWIN ENGINEERING, INC. 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972)396-1200 TBPE FIRM #5951			
DEVELOPMENT PLANS FOR BREEZY HILL PHASE I ROCKWALL, TEXAS			
WATER AND SANITARY SEWER PLAN			
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE:	9 of 18
12003	APRIL 2013	1"=100'	



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.

AS-BUILT APRIL 2014
 INFORMATION PROVIDED BY CONTRACTORS
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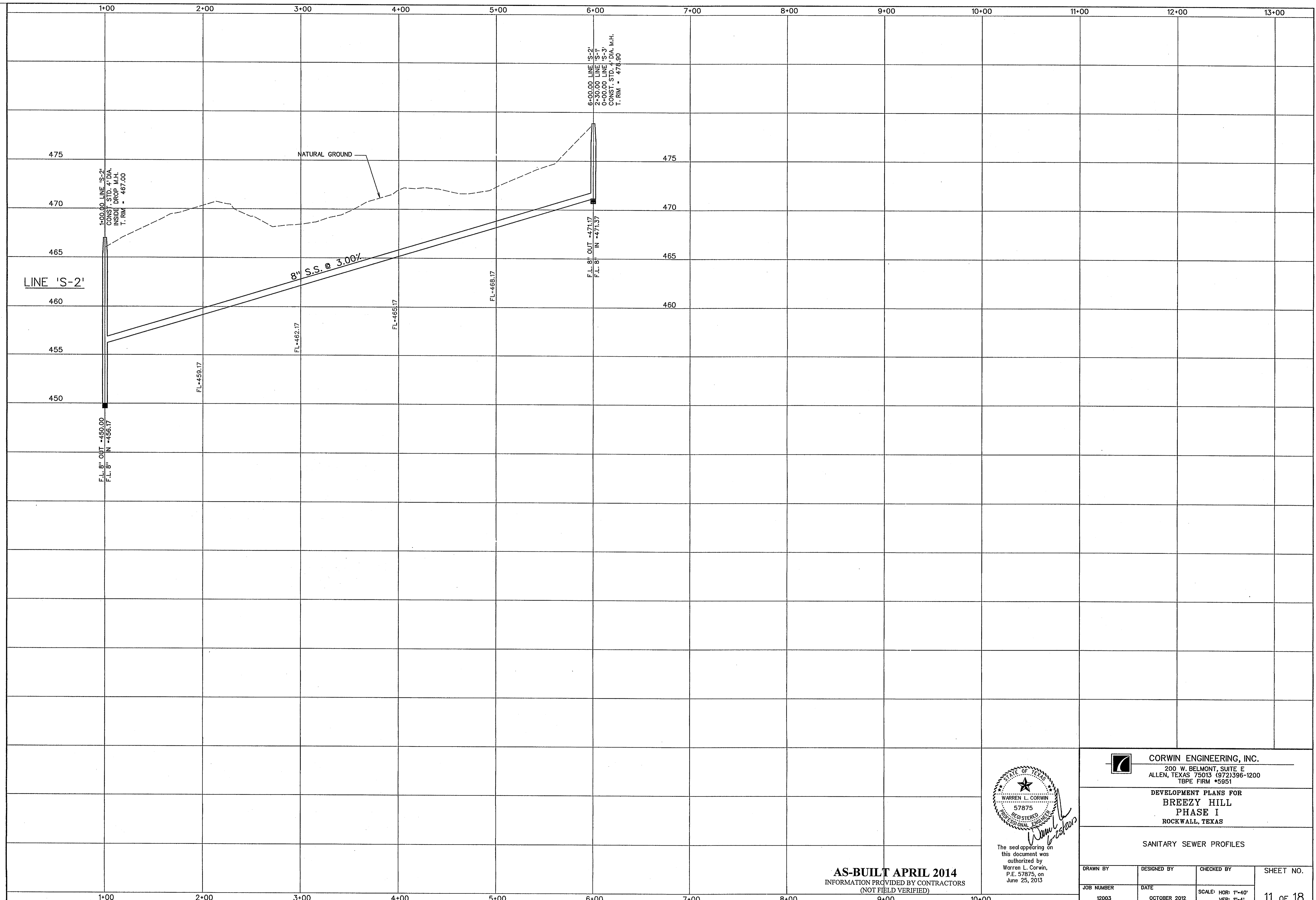
The seal appearing on this document was authorized by Warren L. Corwin, P.E. 57875, on June 25, 2013

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

DEVELOPMENT PLANS FOR
BREEZY HILL
 PHASE I
 ROCKWALL, TEXAS

SANITARY SEWER PROFILES

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	10 of 18
12003	OCTOBER 2012		



1+00.00 LINE 'S-2'
CONST. STD. 4" DIA.
INSIDE DROP M.H.
T. RIM = 467.00

LINE 'S-2'

F.L. 8" OUT +450.00
F.L. 8" IN +456.17

FL+459.17

8" S.S. @ 3.00%

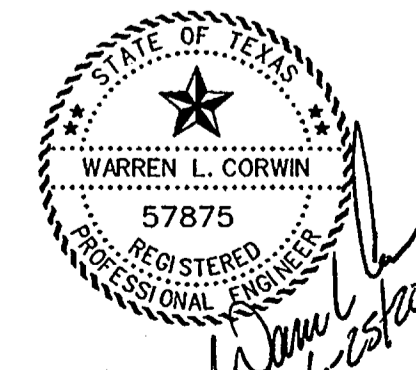
FL+462.17

FL+465.17

FL+468.17

F.L. 8" OUT +471.17
F.L. 8" IN +471.37

6+00.00 LINE 'S-2'
2+30.00 LINE 'S-1'
0+00.00 LINE 'S-3'
CONST. STD. 4" DIA. M.H.
T. RIM = 478.90



The seal appearing on this document was authorized by Warren L. Corwin, P.E. 57875, on June 25, 2013

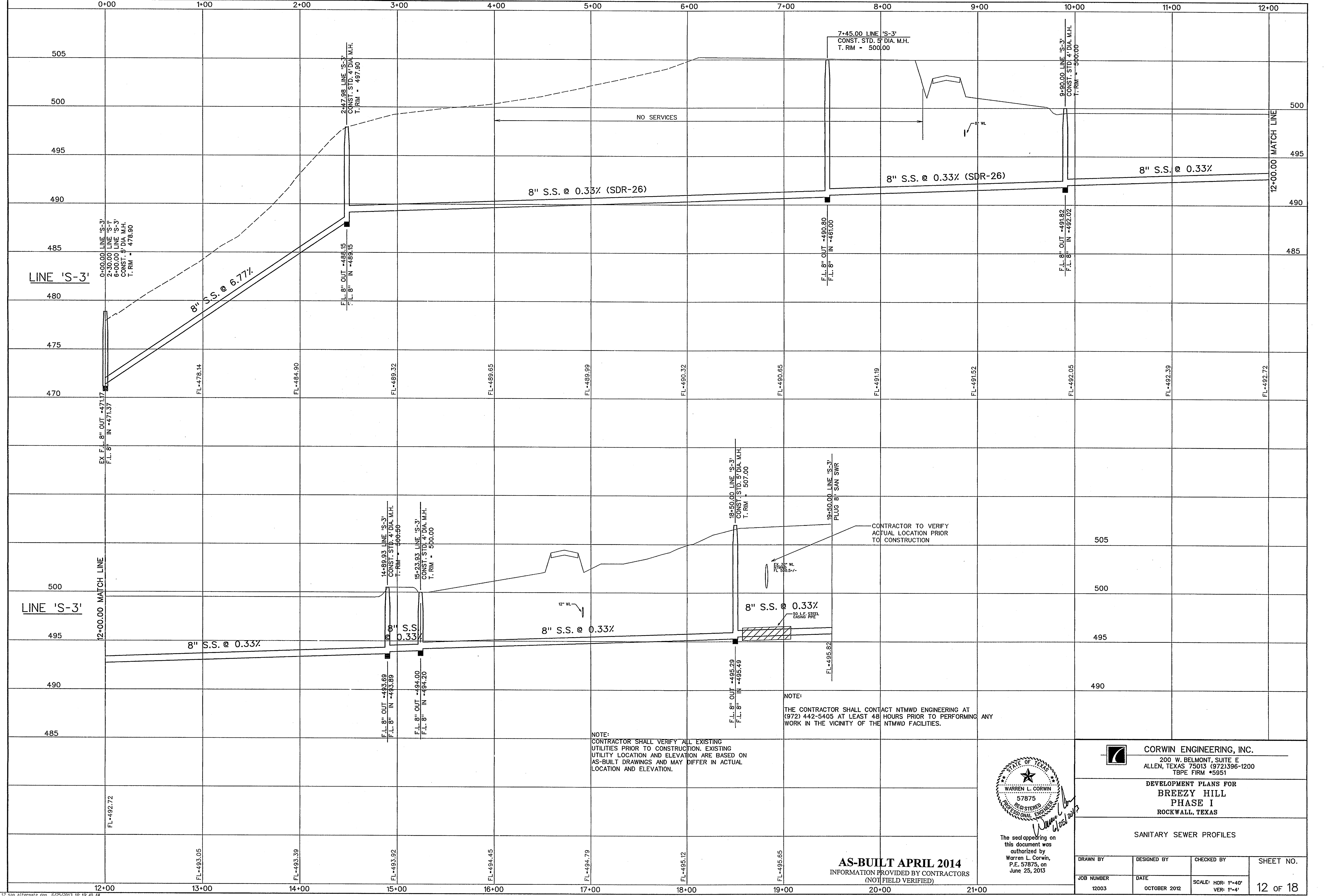
AS-BUILT APRIL 2014
INFORMATION PROVIDED BY CONTRACTORS
(NOT FIELD VERIFIED)

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

DEVELOPMENT PLANS FOR
BREZY HILL
PHASE I
ROCKWALL, TEXAS

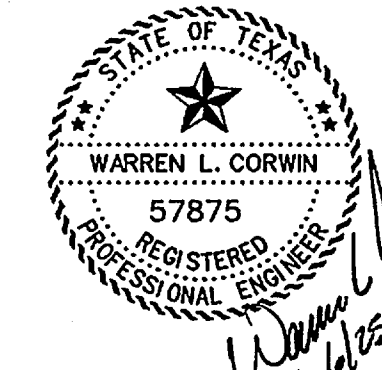
SANITARY SEWER PROFILES

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO. 11 of 18
JOB NUMBER 12003	DATE OCTOBER 2012	SCALE: HOR: 1"=40' VER: 1"=4'	



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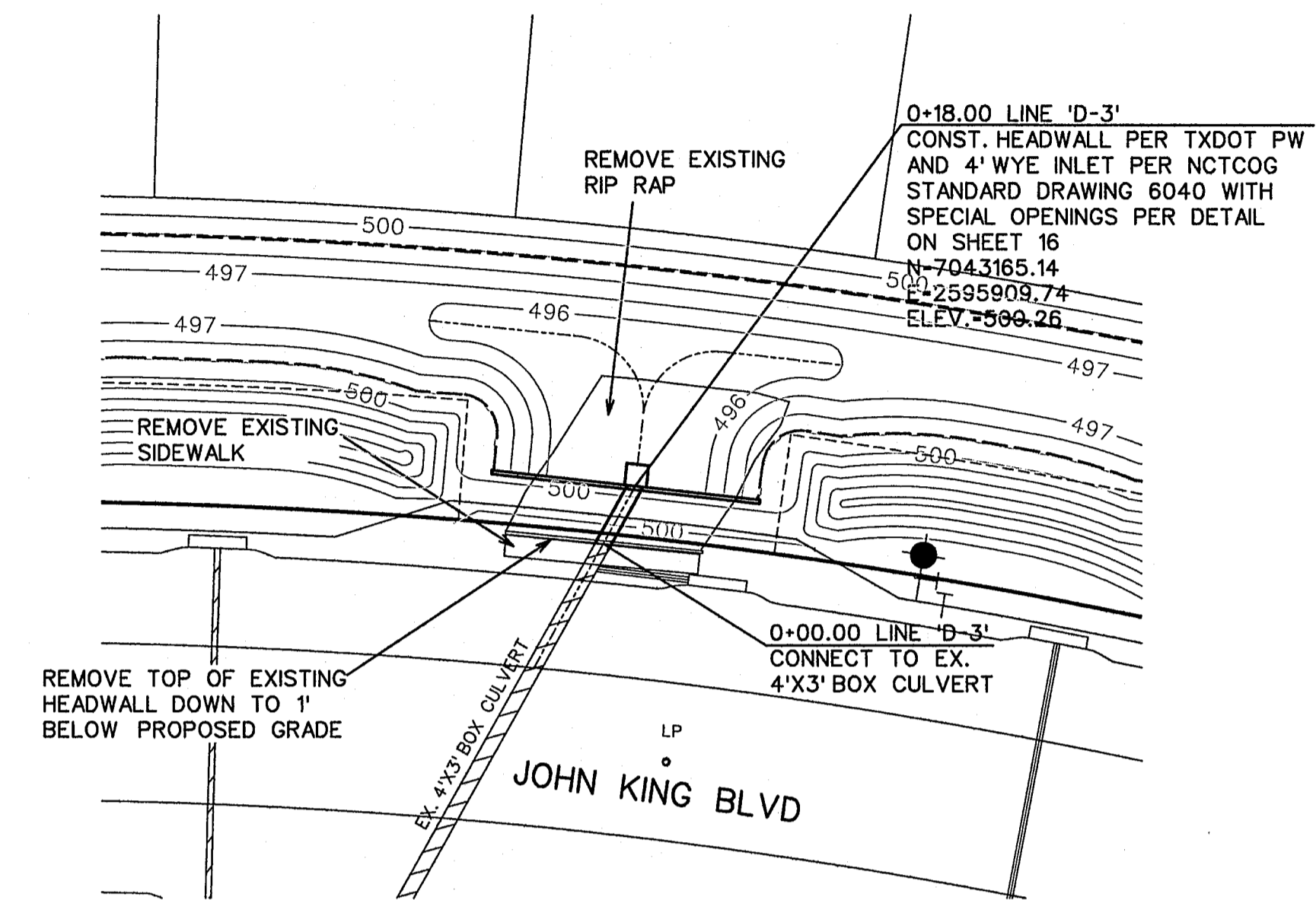
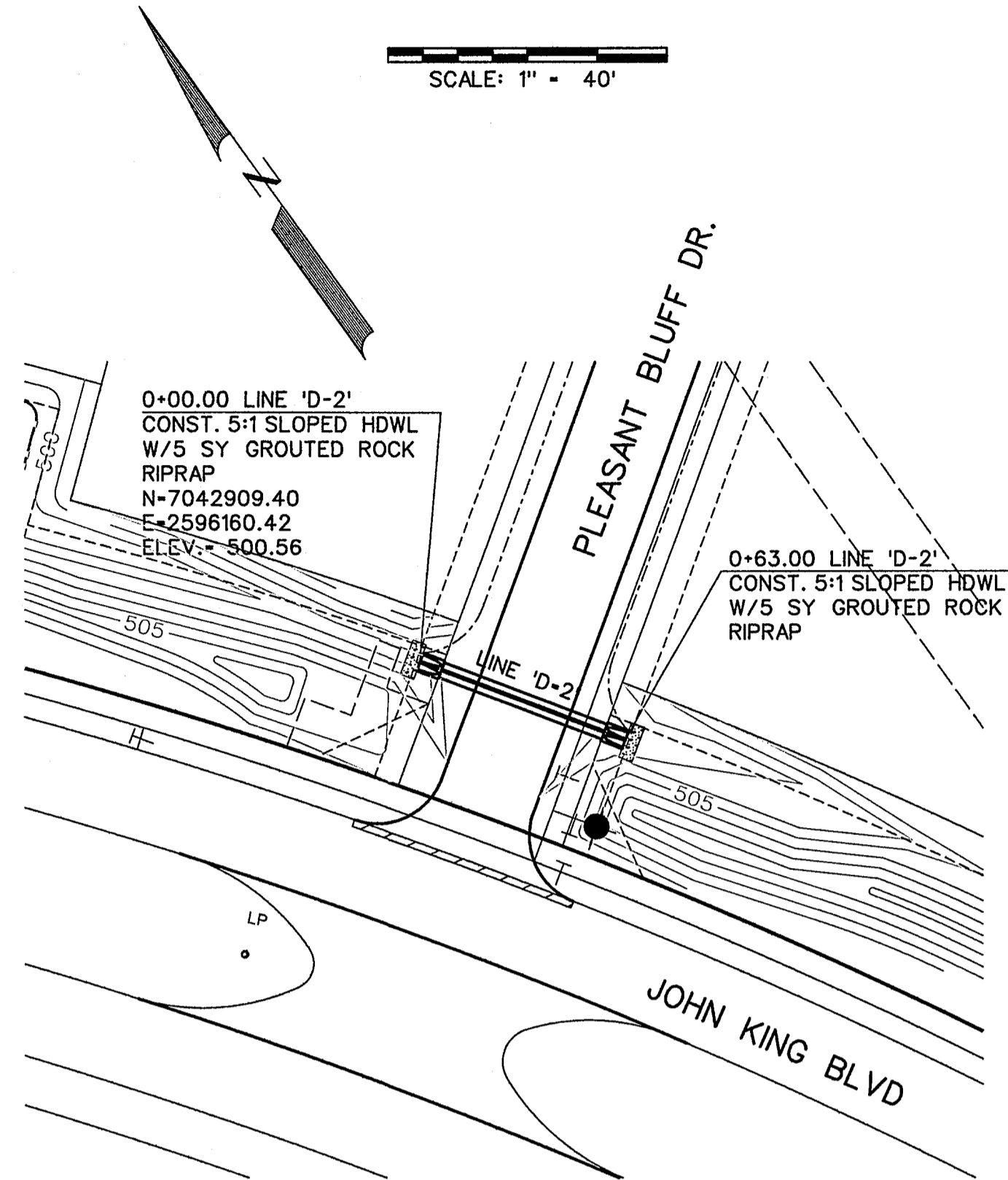
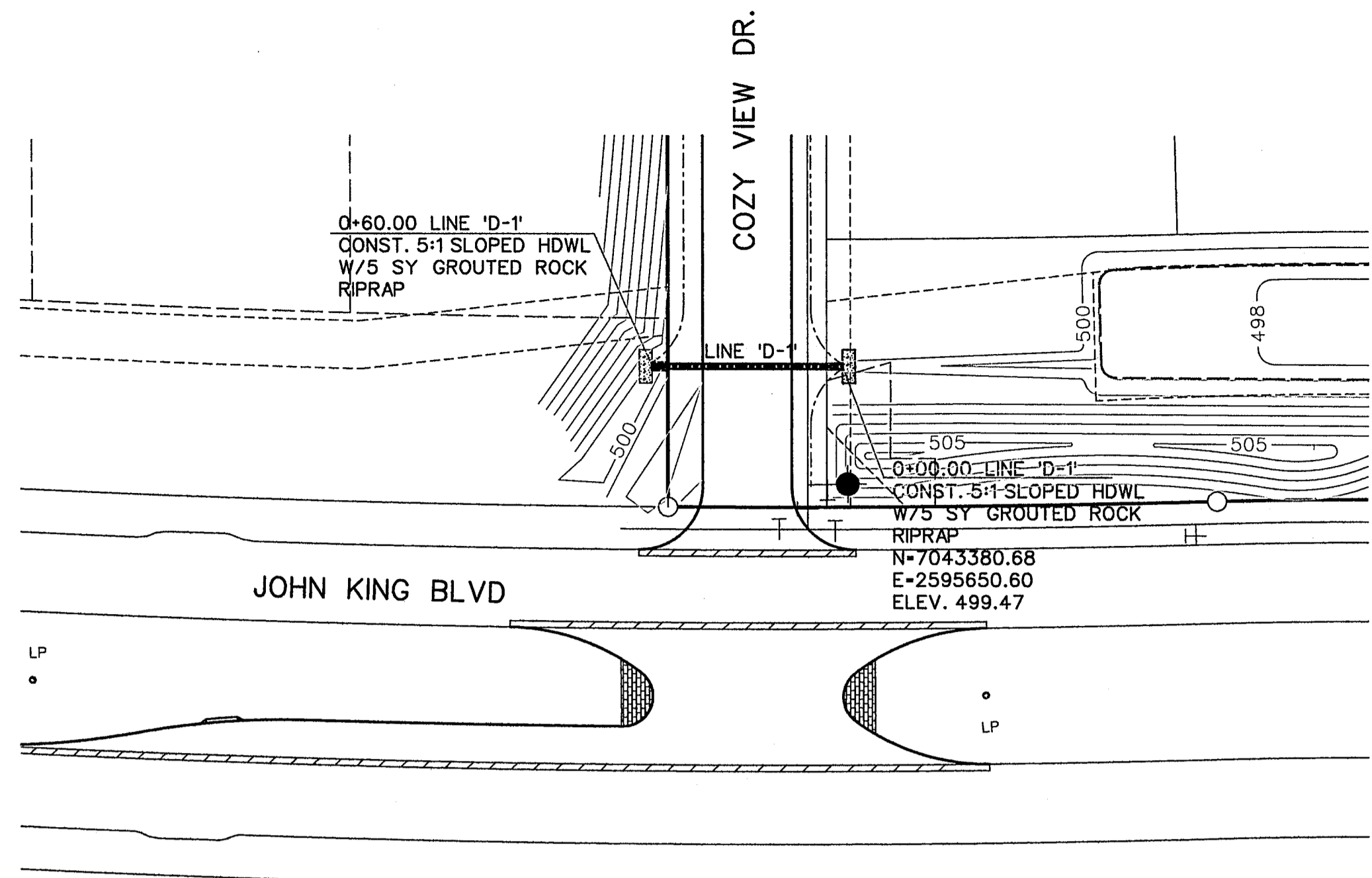
AS-BUILT APRIL 2014
INFORMATION PROVIDED BY CONTRACTORS (NOT FIELD VERIFIED)

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

DEVELOPMENT PLANS FOR
BREEZY HILL
PHASE I
ROCKWALL, TEXAS

SANITARY SEWER PROFILES

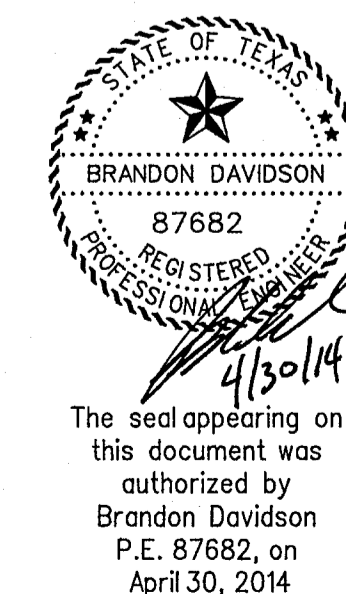
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	12 OF 18
12003	OCTOBER 2012		



4'X3' BOX
 Q₁₀₀ = 30.3 cfs
 V₁₀₀ = 2.6 fps
 S = 0.0006
 CAP = 83.3 cfs

		<p>18" RCP Q₁₀₀ = 2.3 cfs V₁₀₀ = 1.3 fps S = 0.0005</p>			<p>2-24" RCP Q₁₀₀ = 25.1 cfs V₁₀₀ = 4.0 fps S = 0.0031</p>					<p>4'X3' BOX Q₁₀₀ = 30.3 cfs V₁₀₀ = 2.6 fps S = 0.0006 CAP = 83.3 cfs</p>		
	505			505								
	500			500								
	495			495								
		<p>LINE 'D-1'</p>			<p>LINE 'D-2'</p>					<p>LINE 'D-3'</p>		

AS-BUILT APRIL 2014
 INFORMATION PROVIDED
 BY CONTRACTORS
 (NOT FIELD VERIFIED)



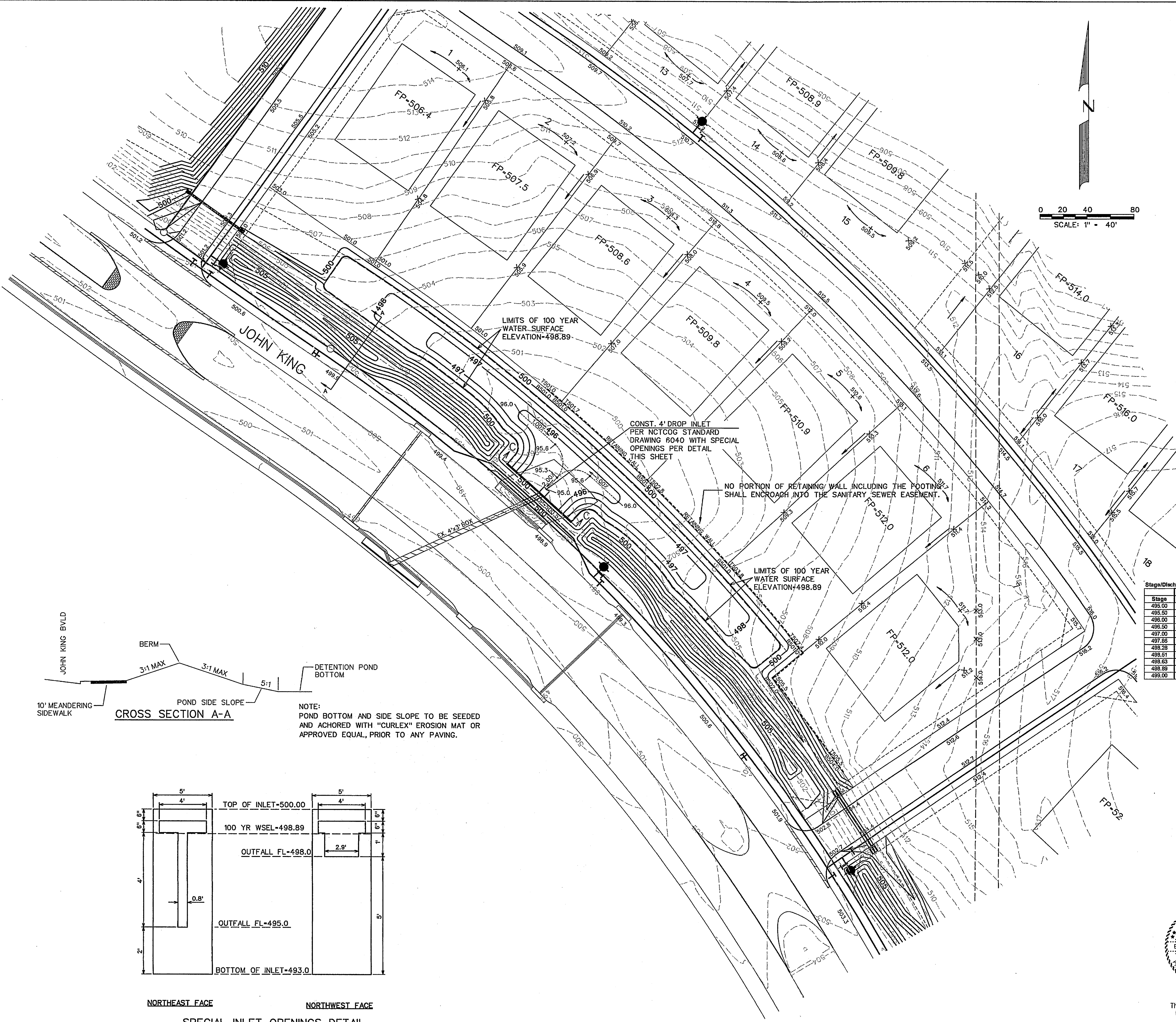
The seal appearing on
 this document was
 authorized by
 Brandon Davidson
 P.E. 87682, on
 April 30, 2014

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

DEVELOPMENT PLANS FOR
BREEZY HILL
 PHASE I
 ROCKWALL, TEXAS

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

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	15 OF 18
12003	OCTOBER 2012		



**South Pond
2-Year Storm
Undeveloped Runoff Calculations**

Area #	Area (sf)	Area (acres)	Existing Runoff Coefficient	Tc - Existing (min)	Rainfall Intensity (in/hr)	Q - Undeveloped (cfs)
2,3,4,6	455030	10.45	0.35	20	3.9	14.3

Post-Development Runoff Calculations

Area #	Area (sf)	Area (acres)	Existing Runoff Coefficient	Tc - Existing (min)	Rainfall Intensity (in/hr)	Q - Post Development (cfs)	Difference between Pre and Post Development Conditions
2,3,4,6	480528	11.03	0.50	10	5.3	23.2	15.0

**10-Year Storm
Undeveloped Runoff Calculations**

Area #	Area (sf)	Area (acres)	Existing Runoff Coefficient	Tc - Existing (min)	Rainfall Intensity (in/hr)	Q - Undeveloped (cfs)
2,3,4,6	455030	10.45	0.35	20	5.9	21.6

Post-Development Runoff Calculations

Area #	Area (sf)	Area (acres)	Existing Runoff Coefficient	Tc - Existing (min)	Rainfall Intensity (in/hr)	Q - Post Development (cfs)	Difference between Pre and Post Development Conditions
2,3,4,6	480528	11.03	0.50	10	7.1	39.2	17.6

**25-Year Storm
Undeveloped Runoff Calculations**

Area #	Area (sf)	Area (acres)	Existing Runoff Coefficient	Tc - Existing (min)	Rainfall Intensity (in/hr)	Q - Undeveloped (cfs)
2,3,4,6	455030	10.45	0.35	20	6.6	24.1

Post-Development Runoff Calculations

Area #	Area (sf)	Area (acres)	Existing Runoff Coefficient	Tc - Existing (min)	Rainfall Intensity (in/hr)	Q - Post Development (cfs)	Difference between Pre and Post Development Conditions
2,3,4,6	480528	11.03	0.50	10	8.3	45.8	21.6

**50-Year Storm
Undeveloped Runoff Calculations**

Area #	Area (sf)	Area (acres)	Existing Runoff Coefficient	Tc - Existing (min)	Rainfall Intensity (in/hr)	Q - Undeveloped (cfs)
2,3,4,6	455030	10.45	0.35	20	7.5	27.4

Post-Development Runoff Calculations

Area #	Area (sf)	Area (acres)	Existing Runoff Coefficient	Tc - Existing (min)	Rainfall Intensity (in/hr)	Q - Post Development (cfs)	Difference between Pre and Post Development Conditions
2,3,4,6	480528	11.03	0.50	10	9	49.6	22.2

**100-Year Storm
Undeveloped Runoff Calculations**

Area #	Area (sf)	Area (acres)	Existing Runoff Coefficient	Tc - Existing (min)	Rainfall Intensity (in/hr)	Q - Undeveloped (cfs)
2,3,4,6	455030	10.45	0.35	20	8.3	30.3

Post-Development Runoff Calculations

Area #	Area (sf)	Area (acres)	Existing Runoff Coefficient	Tc - Existing (min)	Rainfall Intensity (in/hr)	Q - Post Development (cfs)	Difference between Pre and Post Development Conditions
2,3,4,6	480528	11.03	0.50	10	9.8	54.1	23.7

Elevation Calculations Based on Allowable Release Rate

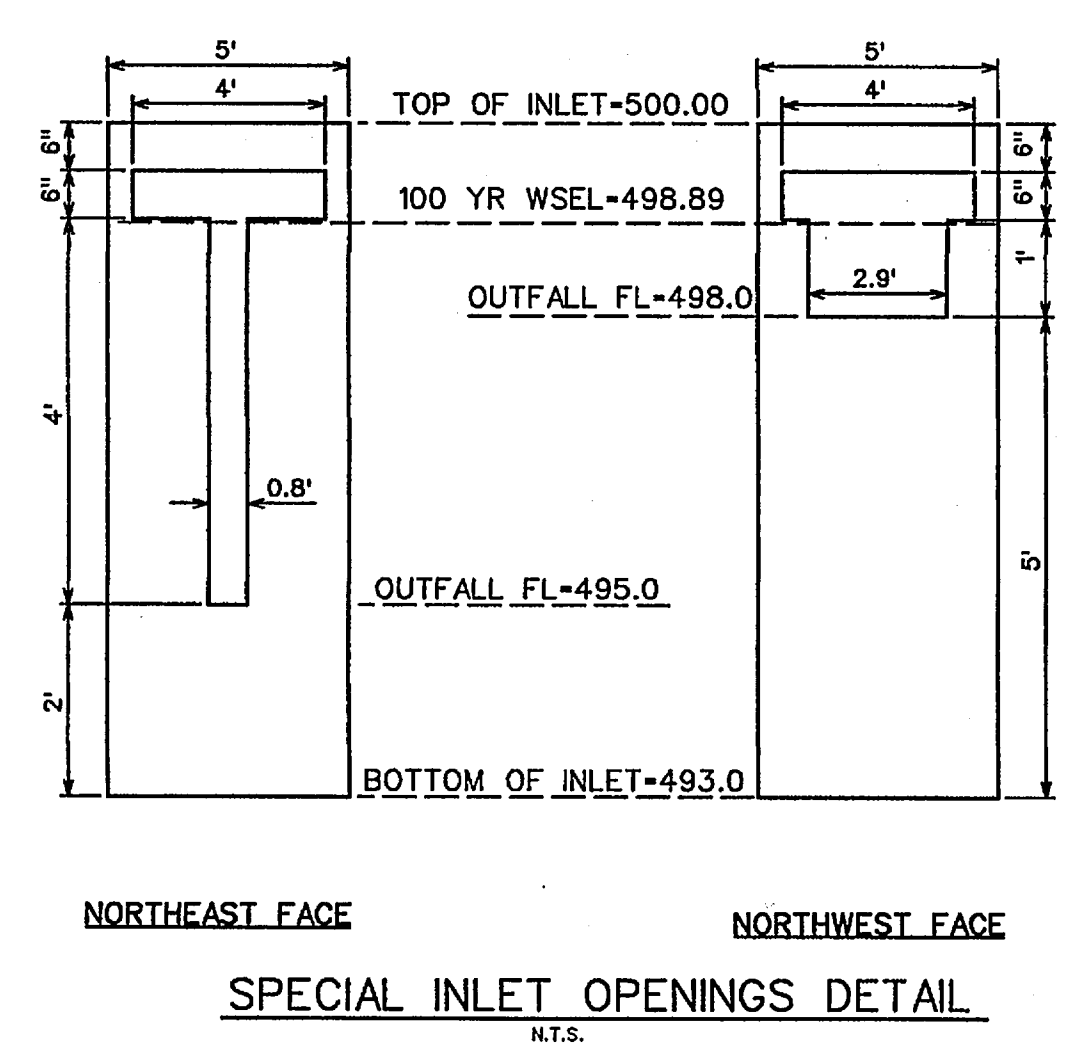
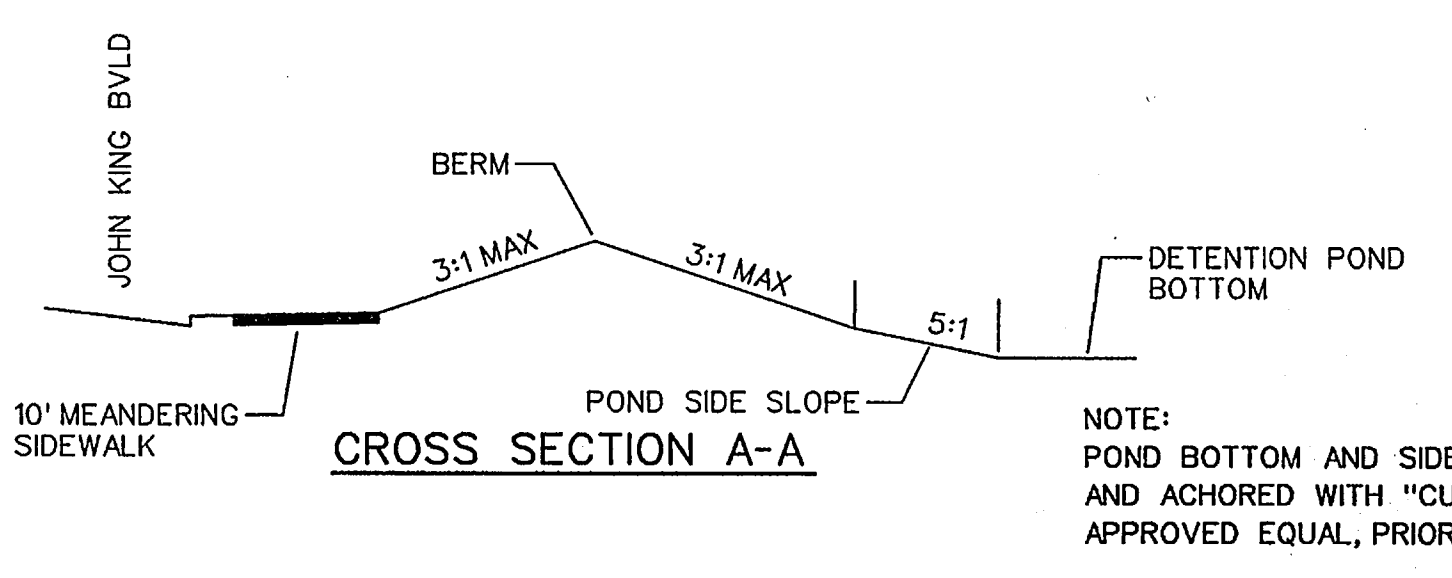
Event	Storage Requirement	Occurs at Elevation	Maximum Allowable Release Rate
2-year	15653	497.88	14.3
10-year	21770	498.28	21.6
25-year	25449	498.51	24.1
50-year	27705	498.63	27.4
100-year	32090	498.89	30.3

Elevation-Storage Table

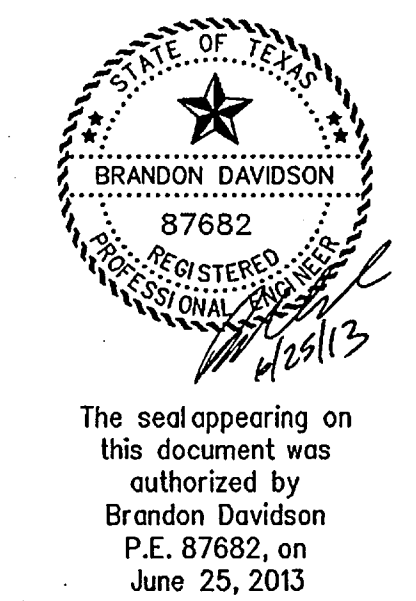
Elevation (cf)	Volume
495	0
496	1476
497	6685
498	17057
499	33859
500	58515

Stage/Discharge Calculations Based on Control Structure (Weir Equation)

Stage	Lower Opening			Upper Opening			Total Discharge	Allowable Discharge	Above (Below)
	Height	Weir Length	Discharge	Height	Weir Length	Discharge			
495.00	0.00	0.00	0.0	-	-	0.0	0.0		
495.50	0.50	0.80	1.0	-	-	0.0	1.0		
496.00	1.00	0.80	2.7	-	-	0.0	2.7		
496.50	1.50	0.80	4.9	-	-	0.0	4.9		
497.00	2.00	0.80	7.6	-	-	0.0	7.6		
497.88	2.88	0.80	13.1	-	-	0.0	13.1	14.3	(1.20)
498.28	3.28	0.80	16.0	0.28	2.90	1.5	17.5	21.6	(4.12)
498.51	3.51	0.80	17.7	0.51	2.90	3.6	21.3	24.1	(2.84)
498.63	3.63	0.80	18.7	0.63	2.90	4.9	23.6	27.4	(3.84)
498.89	3.89	0.80	20.7	0.89	2.90	8.3	29.0	30.3	(1.30)
499.00	4.00	0.80	21.5	1.00	2.90	9.8	31.3		



SEE SHT. 16B FOR REINFORCING



The seal appearing on this document was authorized by Brandon Davidson P.E. 87682, on June 25, 2013

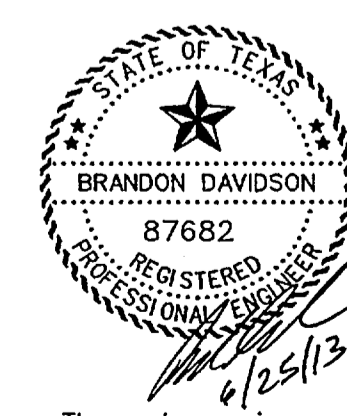
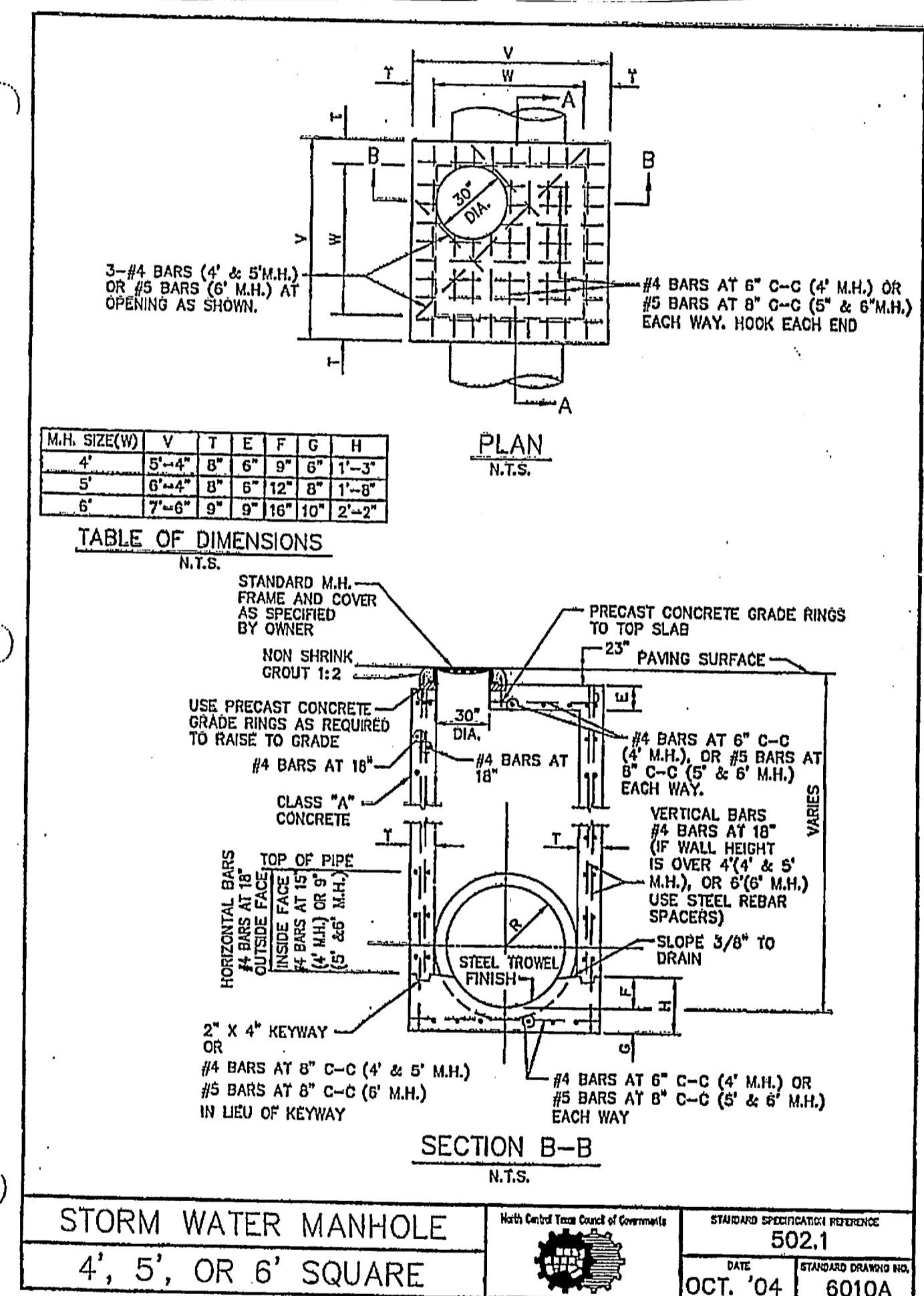
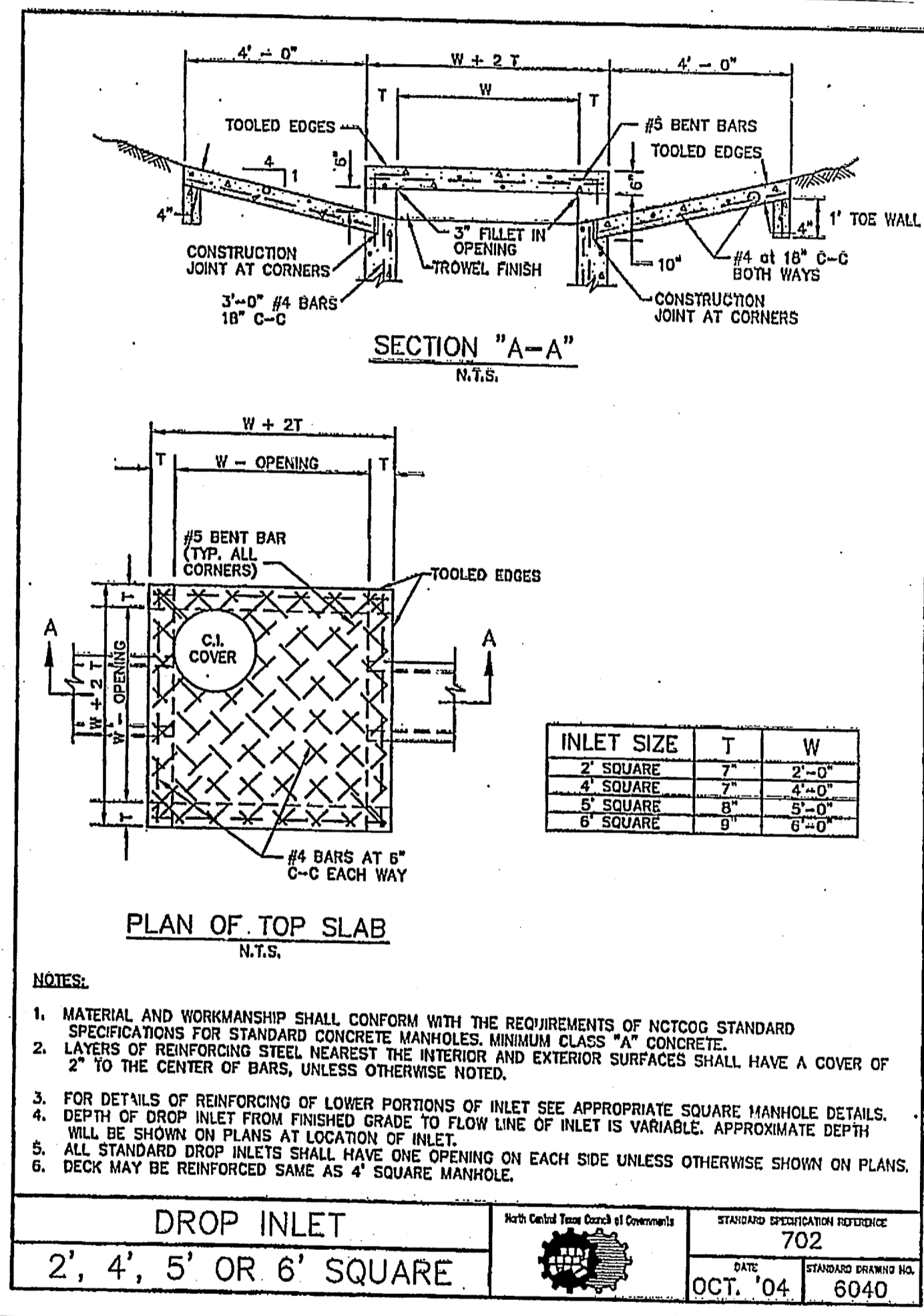
AS-BUILT APRIL 2014
INFORMATION PROVIDED BY CONTRACTORS
(NOT FIELD VERIFIED)

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

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

DETENTION POND PLAN - SOUTH POND

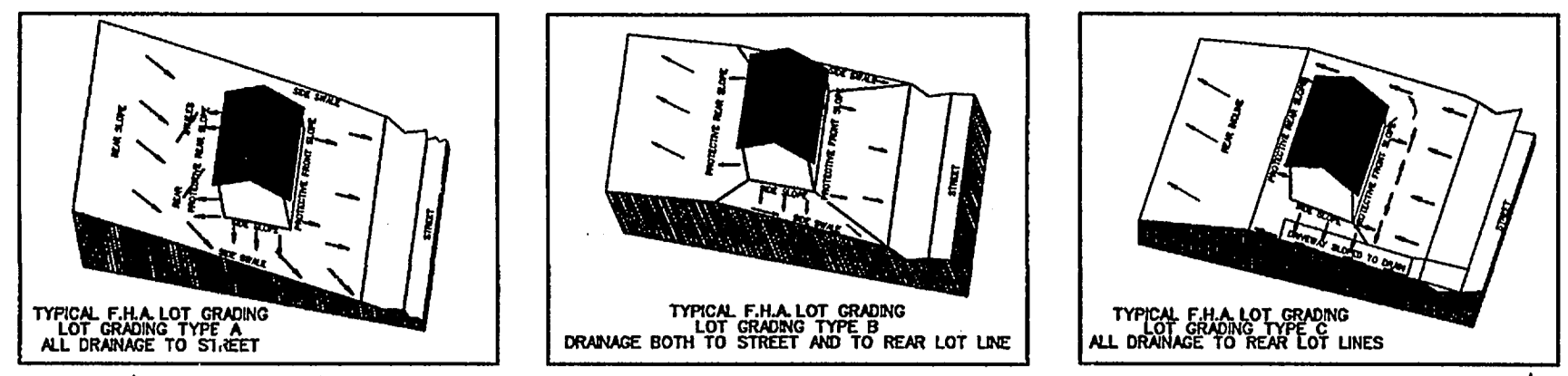
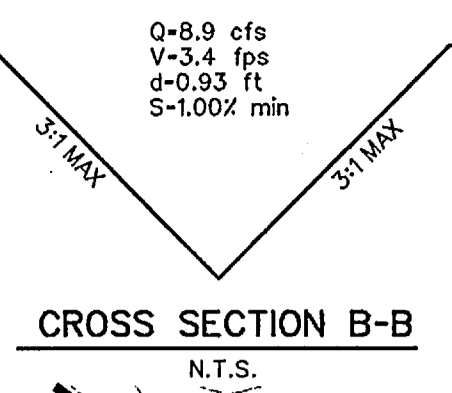
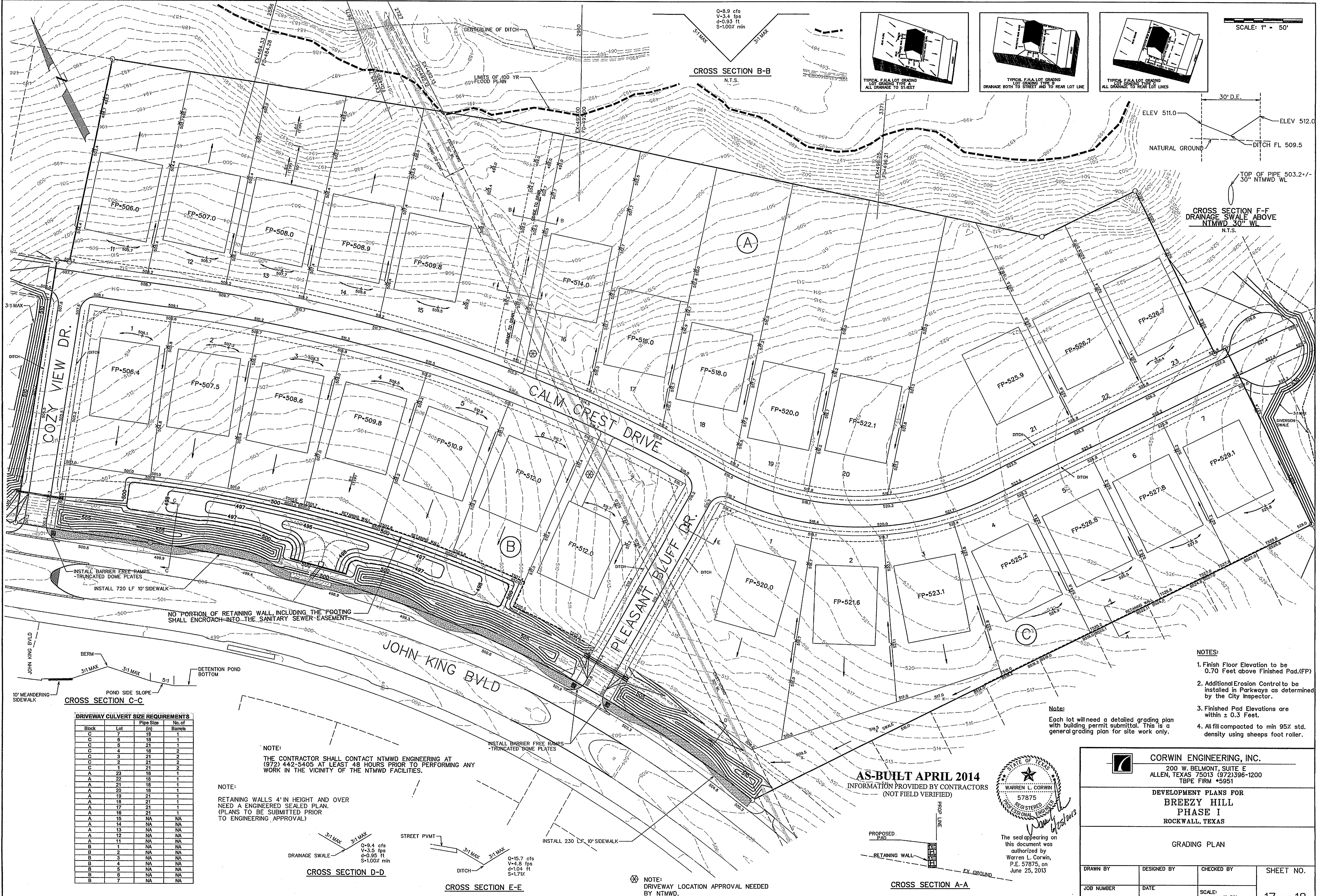
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE	16 OF 18
12003	APRIL 2013	1"=40'	



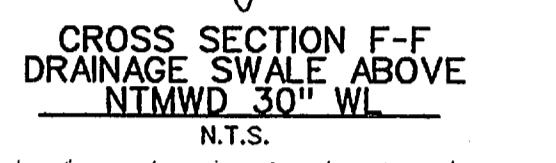
The seal appearing on this document was authorized by Brandon Davidson P.E. 87682, on June 25, 2013

AS-BUILT APRIL 2014
INFORMATION PROVIDED BY CONTRACTORS
(NOT FIELD VERIFIED)

CORWIN ENGINEERING, INC. 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972)396-1200 TBE FIRM #5951			
DEVELOPMENT PLANS FOR BREEZY HILL PHASE I ROCKWALL, TEXAS			
DETENTION POND DETAILS			
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE	16B of 18
12003	APRIL 2013		



SCALE: 1" = 50'

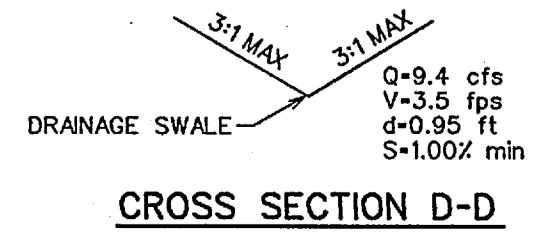


DRIVEWAY CULVERT SIZE REQUIREMENTS

Block	Lot	Pipe Size (in)	No. of Barrels
C	7	18	1
C	6	18	1
C	5	21	2
C	4	18	2
C	3	21	2
C	2	21	2
C	1	21	2
A	23	18	1
A	22	18	1
A	21	18	1
A	20	18	1
A	19	21	1
A	18	21	1
A	17	21	1
A	16	21	1
A	15	NA	NA
A	14	NA	NA
A	13	NA	NA
A	12	NA	NA
A	11	NA	NA
B	1	NA	NA
B	2	NA	NA
B	3	NA	NA
B	4	NA	NA
B	5	NA	NA
B	6	NA	NA
B	7	NA	NA

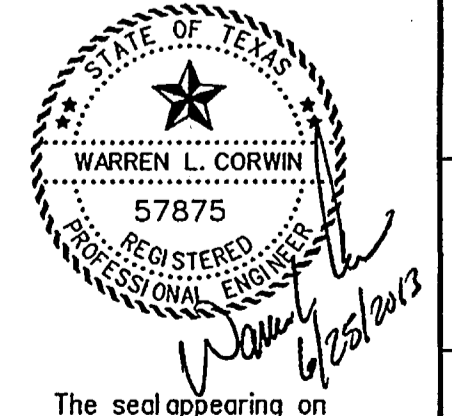
NOTE:
THE CONTRACTOR SHALL CONTACT NTMWD ENGINEERING AT (972) 442-5405 AT LEAST 48 HOURS PRIOR TO PERFORMING ANY WORK IN THE VICINITY OF THE NTMWD FACILITIES.

NOTE:
RETAINING WALLS 4' IN HEIGHT AND OVER NEED AN ENGINEERED SEALED PLAN. (PLANS TO BE SUBMITTED PRIOR TO ENGINEERING APPROVAL)



NOTE:
DRIVEWAY LOCATION APPROVAL NEEDED BY NTMWD.

AS-BUILT APRIL 2014
INFORMATION PROVIDED BY CONTRACTORS
(NOT FIELD VERIFIED)



The seal appearing on this document was authorized by Warren L. Corwin, P.E. 57875, on June 25, 2013

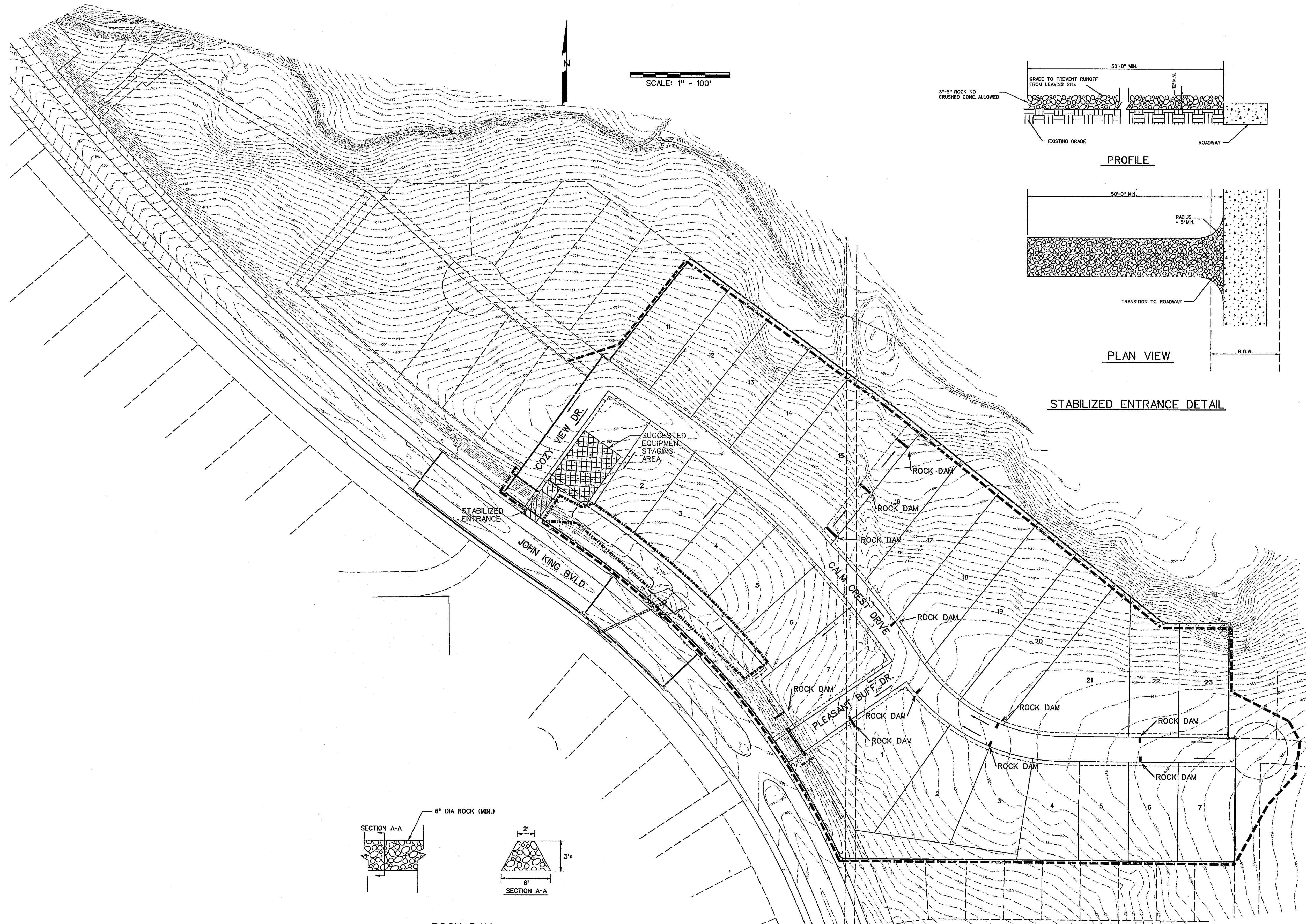
- NOTES:**
1. Finish Floor Elevation to be 0.70 Feet above Finished Pad (FP)
 2. Additional Erosion Control to be installed in Parkways as determined by the City Inspector.
 3. Finished Pad Elevations are within ± 0.3 Feet.
 4. All fill compacted to min 95% std. density using sheeps foot roller.

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

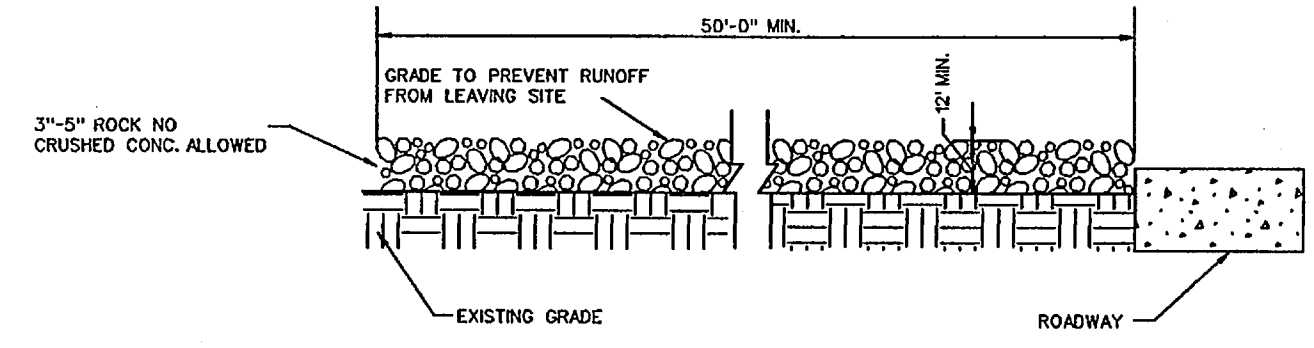
DEVELOPMENT PLANS FOR BREEZY HILL PHASE I ROCKWALL, TEXAS

GRADING PLAN

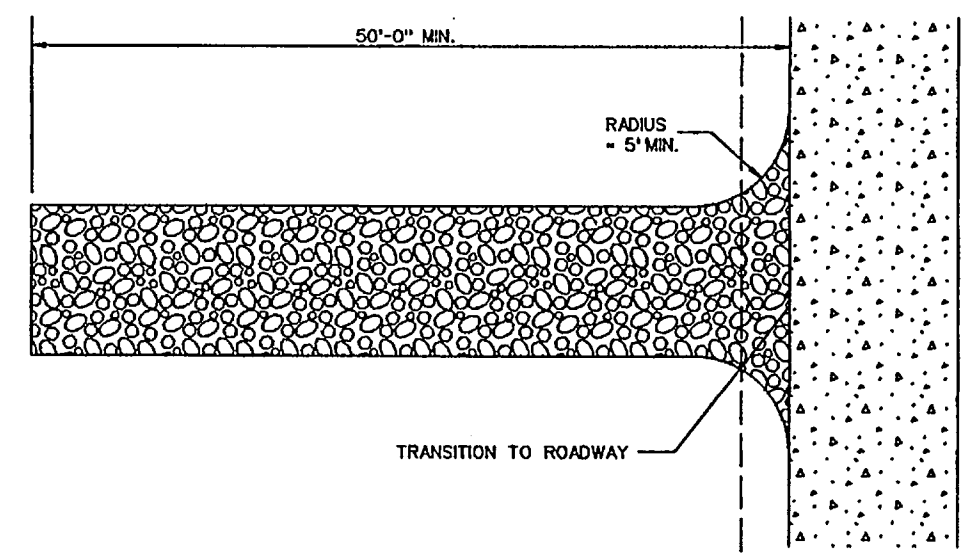
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE	17 of 18
12003	APRIL 2013	1"=50'	



SCALE: 1" = 100'

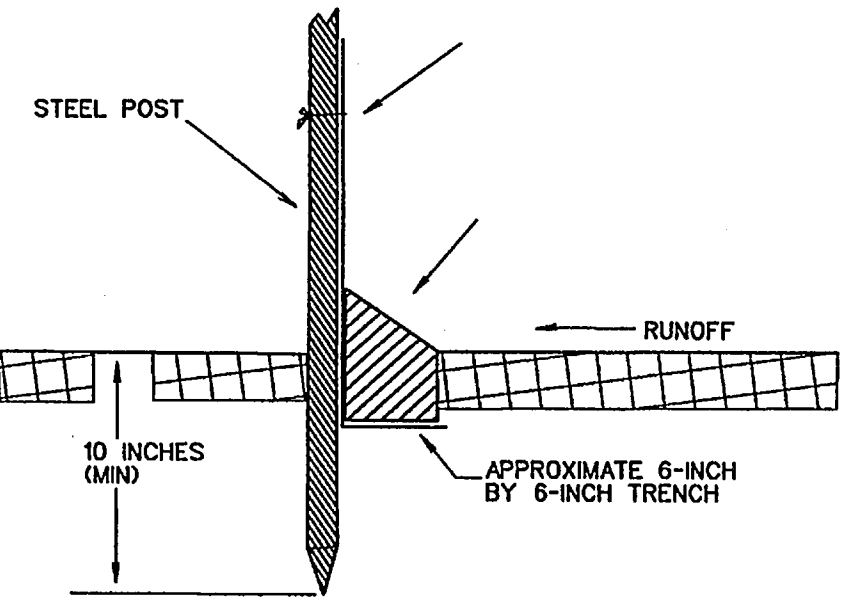
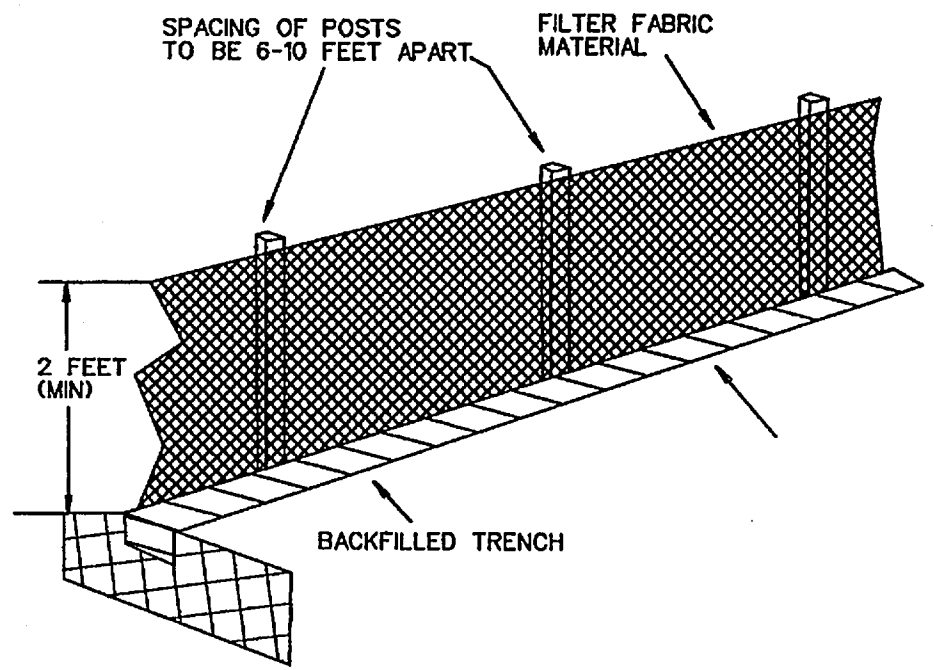


PROFILE

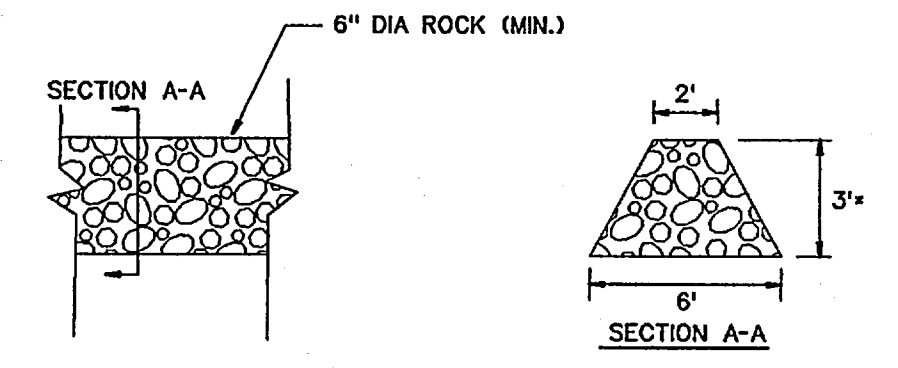


PLAN VIEW

STABILIZED ENTRANCE DETAIL



FILTER FABRIC FENCE DETAIL



ROCK DAM
N.T.S.

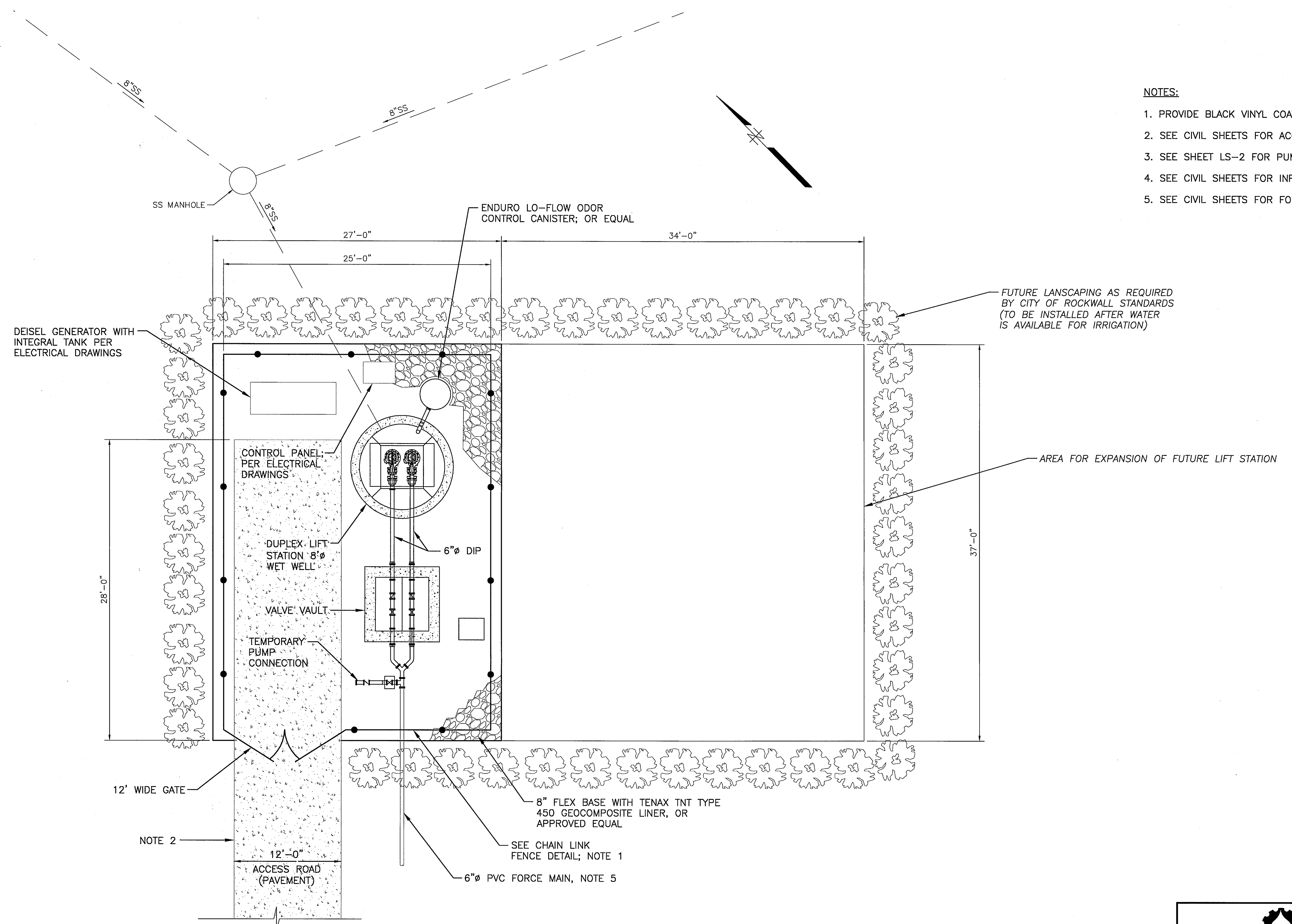
*ROCK DAM SHALL NOT BE BUILT IN SUCH A MANNER THAT RUNOFF IS DIRECTED ONTO THE STREET PAVEMENT BEFORE IT GOES OVER THE TOP OF THE ROCK DAM

- 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. PERFORM GRADING AND UTILITY CONSTRUCTION.
 4. 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.
 5. PRIOR TO CITY RELEASING PAVING, SOD OR SEEDED CURLEX SHALL BE INSTALLED ON SIDES AND BOTTOM OF ALL DETENTION PONDS.
 6. 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.
 7. SILT FENCE SHALL REMAIN IN PLACE UNTIL RE-VEGETATION HAS BEEN COMPLETED.
 8. PAVING CONTRACTOR SHALL REMOVE TEMPORARY STABILIZED ENTRANCE.
 9. PRIOR TO CITY ACCEPTANCE THE PAVING CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY MUD OR SILT WHICH COLLECTS ON THE EXISTING AND NEW PAVEMENT.

- LEGEND**
- SILT FENCE (BEFORE CONSTRUCTION) - - - - -
 - SILT FENCE (AFTER GRADING) - - - - -
 - ROCK DAM - - - - -

<p>CORWIN ENGINEERING, INC. 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972)396-1200 TBE FIRM #5951</p>			
<p>DEVELOPMENT PLANS FOR BREEZY HILL PHASE I ROCKWALL, TEXAS</p>			
<p>EROSION CONTROL PLAN</p>			
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE:	18 of 18
12003	APRIL 2013	1"=100'	

AS-BUILT APRIL 2014
INFORMATION PROVIDED BY CONTRACTORS
(NOT FIELD VERIFIED)



NOTES:

1. PROVIDE BLACK VINYL COATING ON CHAIN LINK FENCE.
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.

SITE PLAN
SCALE: 1"=5'

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

AS-BUILT APRIL 2014
6/21/13
INFORMATION PROVIDED BY CONTRACTORS
(NOT FIELD VERIFIED)



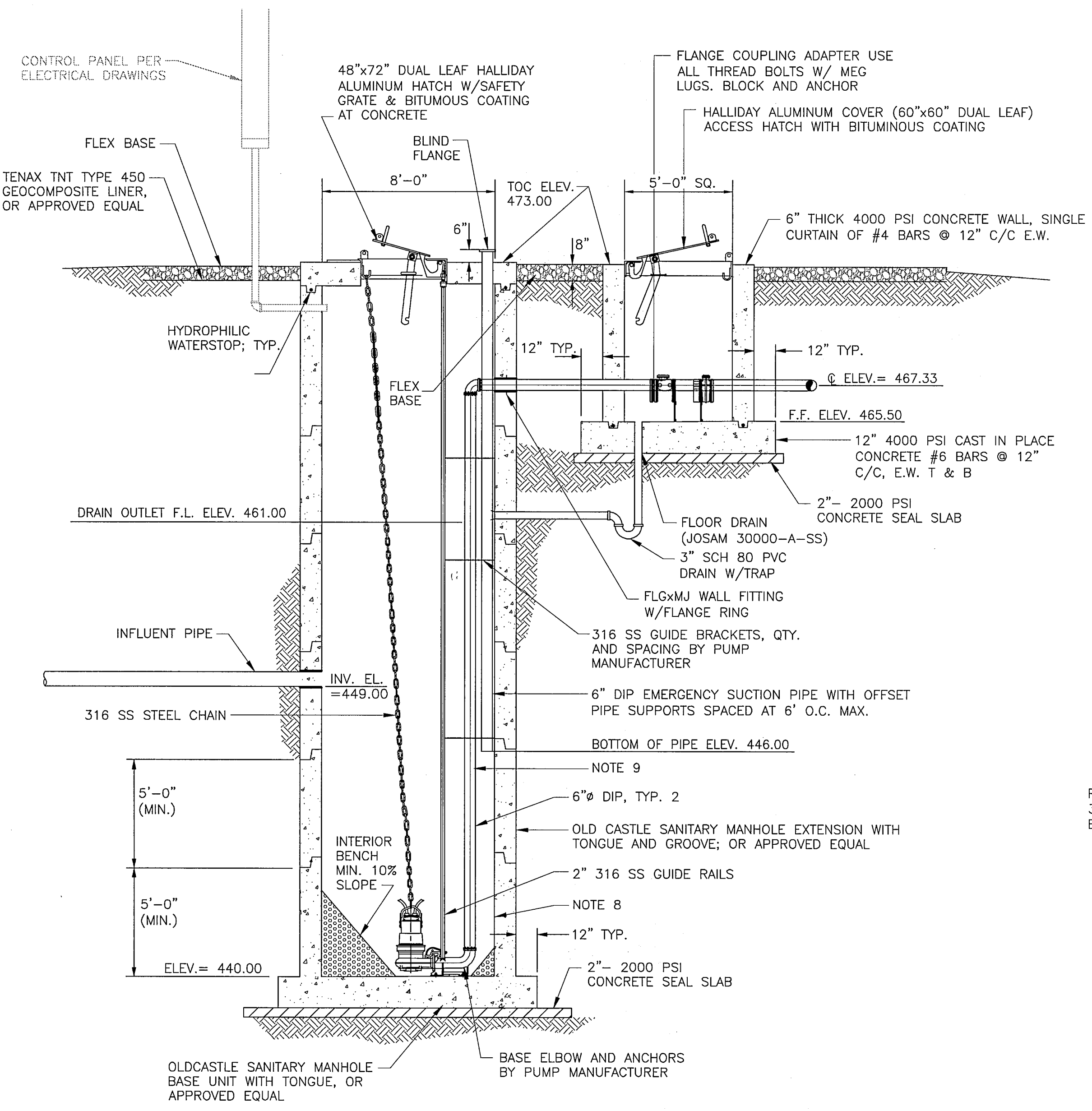
PERKINS ENGINEERING CONSULTANTS, INC. <small>TYPE REGISTRATION NO. F-8699</small>			
<small>DEVELOPMENT PLANS FOR</small> BREEZY HILL PHASE I <small>ROCKWALL, TEXAS</small>			
LIFT STATION SITE PLAN			
<small>DRAWN BY</small> SRG	<small>DESIGNED BY</small> MAP	<small>CHECKED BY</small> MAP	<small>SHEET NO.</small> LS-1
<small>JOB NUMBER</small> COR 12-001	<small>DATE</small> JUNE 2013	<small>SCALE</small> NOTED	

NOTES:

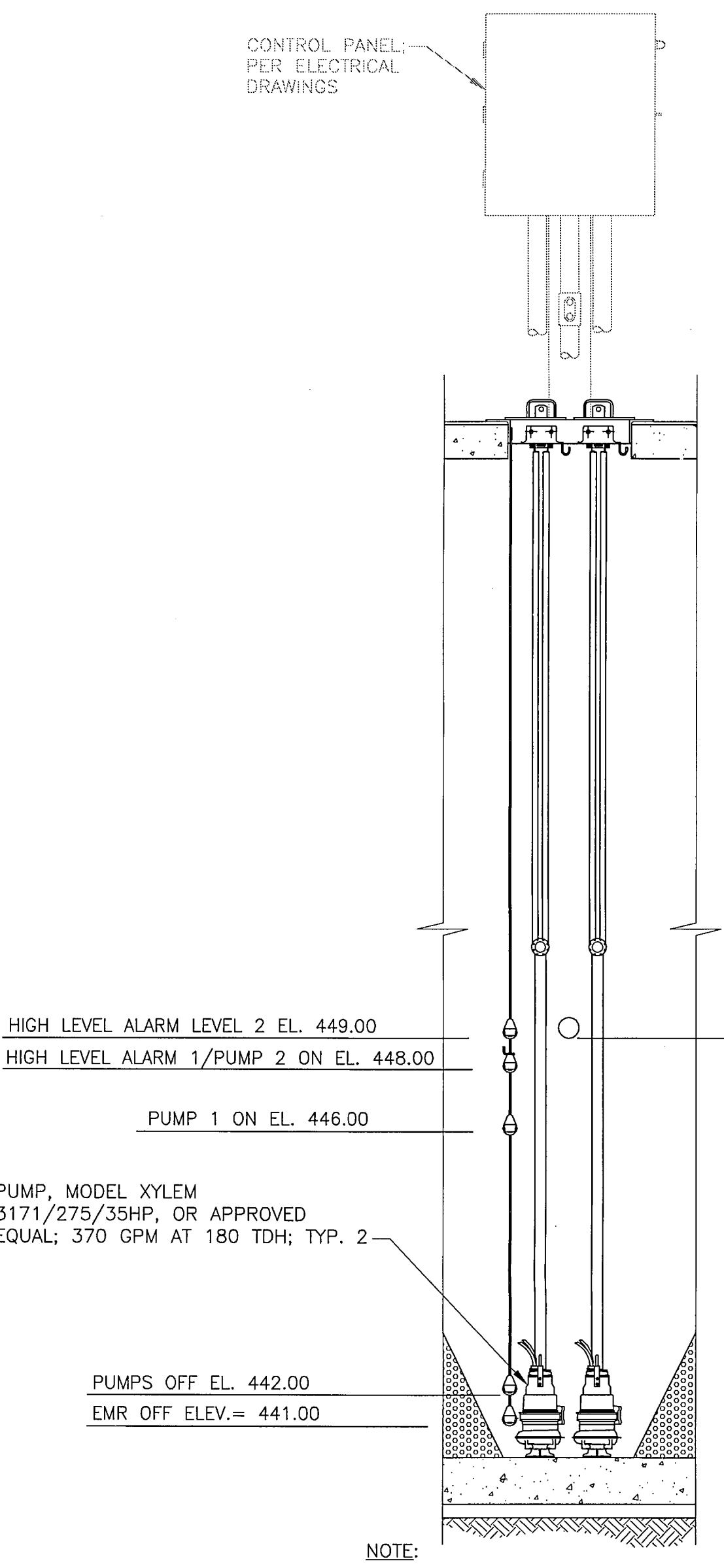
- ALL ITEMS IN VALVE BOX SHALL BE BLOCKED AND SUPPORTED AS NECESSARY.
- PUMP STATION SHALL BE MANUFACTURED FROM TYPE V PORTLAND CEMENT. ALL OTHER CONCRETE SHALL BE MANUFACTURED FROM TYPE I/II PORTLAND CEMENT.
- STEEL REINFORCEMENT SHALL BE ASTM A615 GRADE 60 DEFORMED EXCEPT AT MANHOLE SECTIONS.
- MANHOLE 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.
 - 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 92% OF STANDARD PROCTOR DENSITY. BROWN AND TAN CLAY AND MARLY CLAY SHALL BE COMPACTED AT +5 TO +7% ABOVE OPTIMUM TO 93% ASTM D698. WEATHERED MARL SHALL BE COMPACTED AT +3 TO +6% OF OPTIMUM TO 94% 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 COUNTERWEIGHT.
- 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 PER NOTE ON SHEET LS-3.

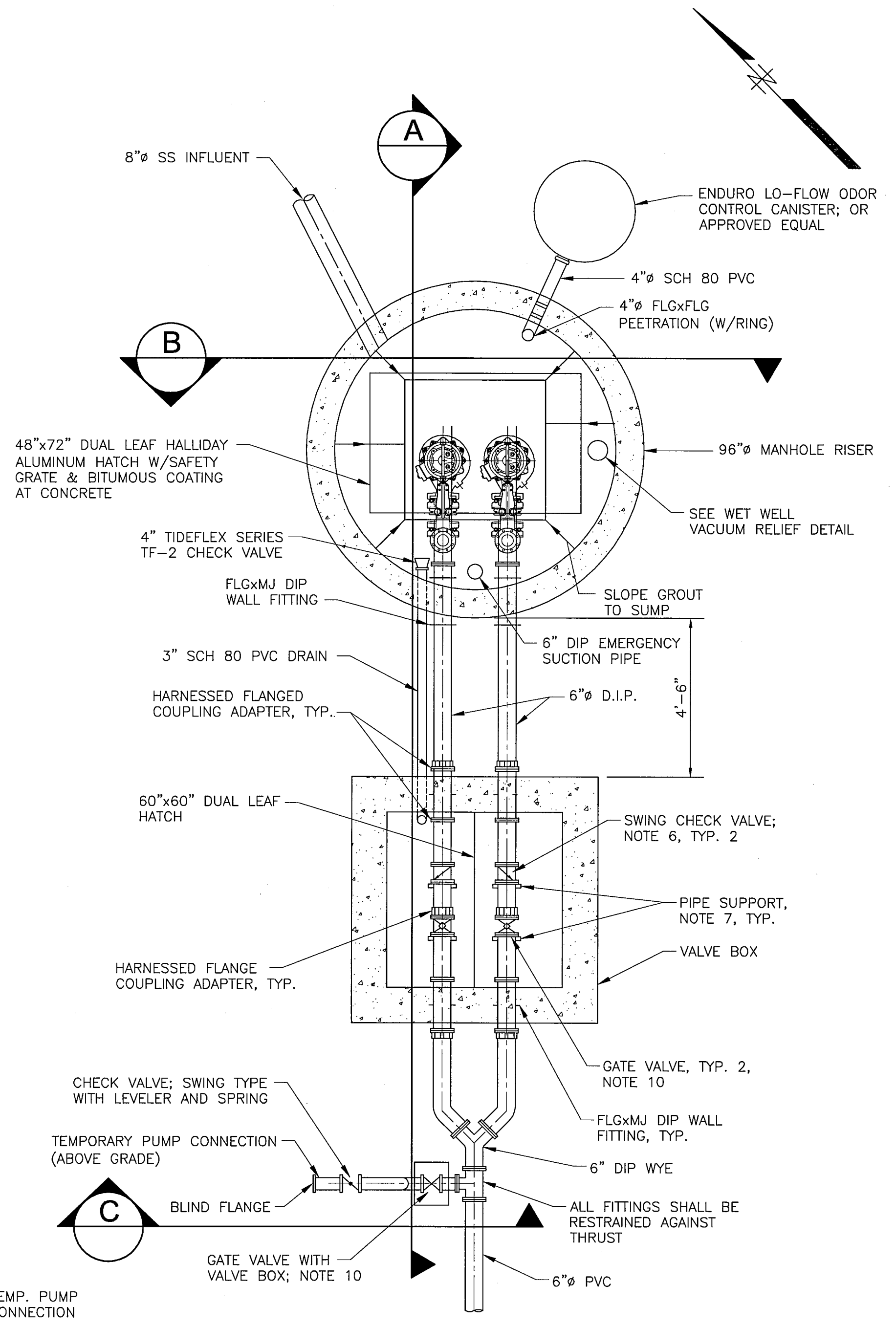
- ALL DIP PIPE WITHIN THE WET WELL AND VALVE VAULT SHALL BE COATED WITH 2 EA. LAYERS OF 6 MIL. OFT DEVOE BAR-RUST 233H HIGH PERFORMANCE EPOXY, OR APPROVED EQUAL. D.I.P. SHALL BE BE EPOXY LINED.
- INSTALL GATE VALVES WITH SHAFTS HORIZONTAL. PROVIDE HORIZONTAL TO VERTICAL GEARED OPERATOR WITH 2" OPERATOR 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.



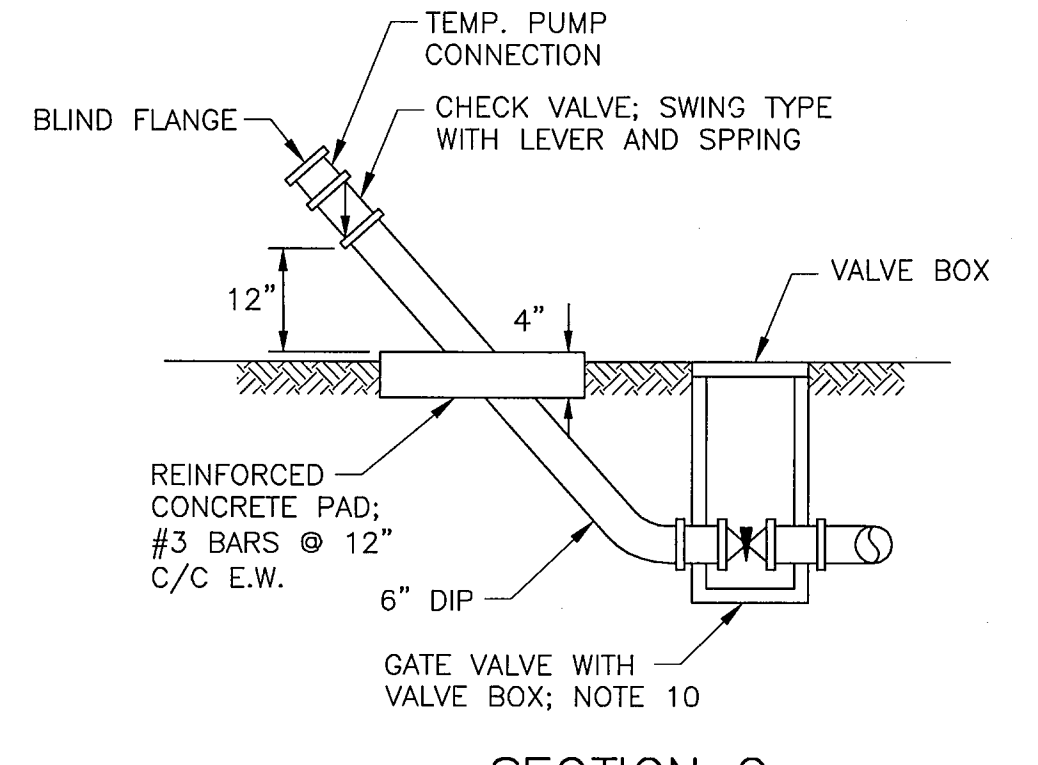
REPRESENTATIVE SECTION A
SCALE: 1/4"=1'-0"



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



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



SECTION C
N.T.S.

- NOTE:**
- FLOATS SHALL BE FIELD ADJUSTED AS NECESSARY.
 - EMERGENCY SUCTION PIPE NOT SHOWN FOR CLARITY.

AS-BUILT APRIL 2014
INFORMATION PROVIDED BY CONTRACTORS
(NOT FIELD VERIFIED)

Mark Perkins
6/21/13
STATE OF TEXAS
MARK A. PERKINS
60329
REGISTERED
PROFESSIONAL ENGINEER

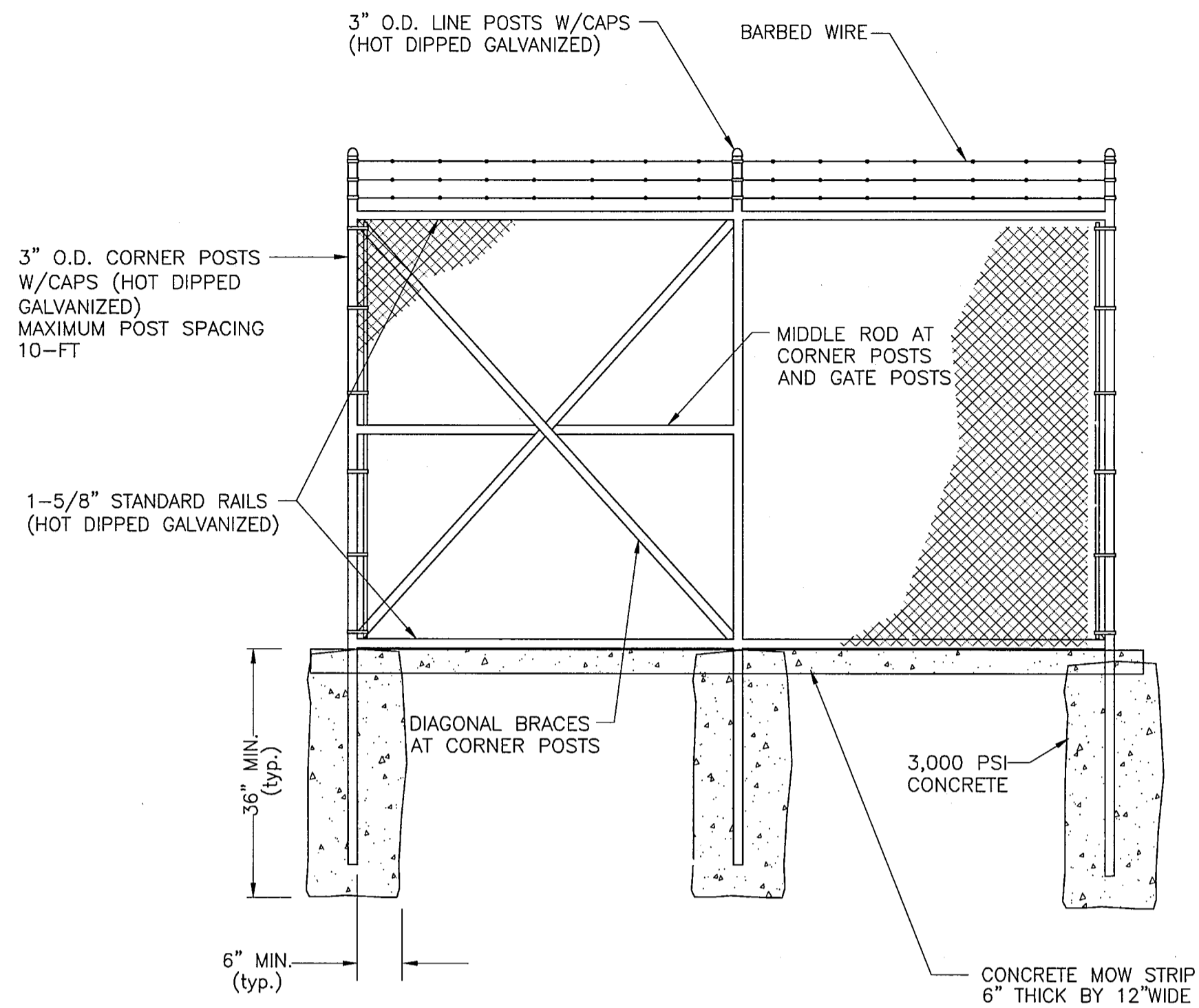
PERKINS ENGINEERING CONSULTANTS, INC.
TPE REGISTRATION NO. F-8699

DEVELOPMENT PLANS FOR
BREEZY HILL PHASE I
ROCKWALL, TEXAS

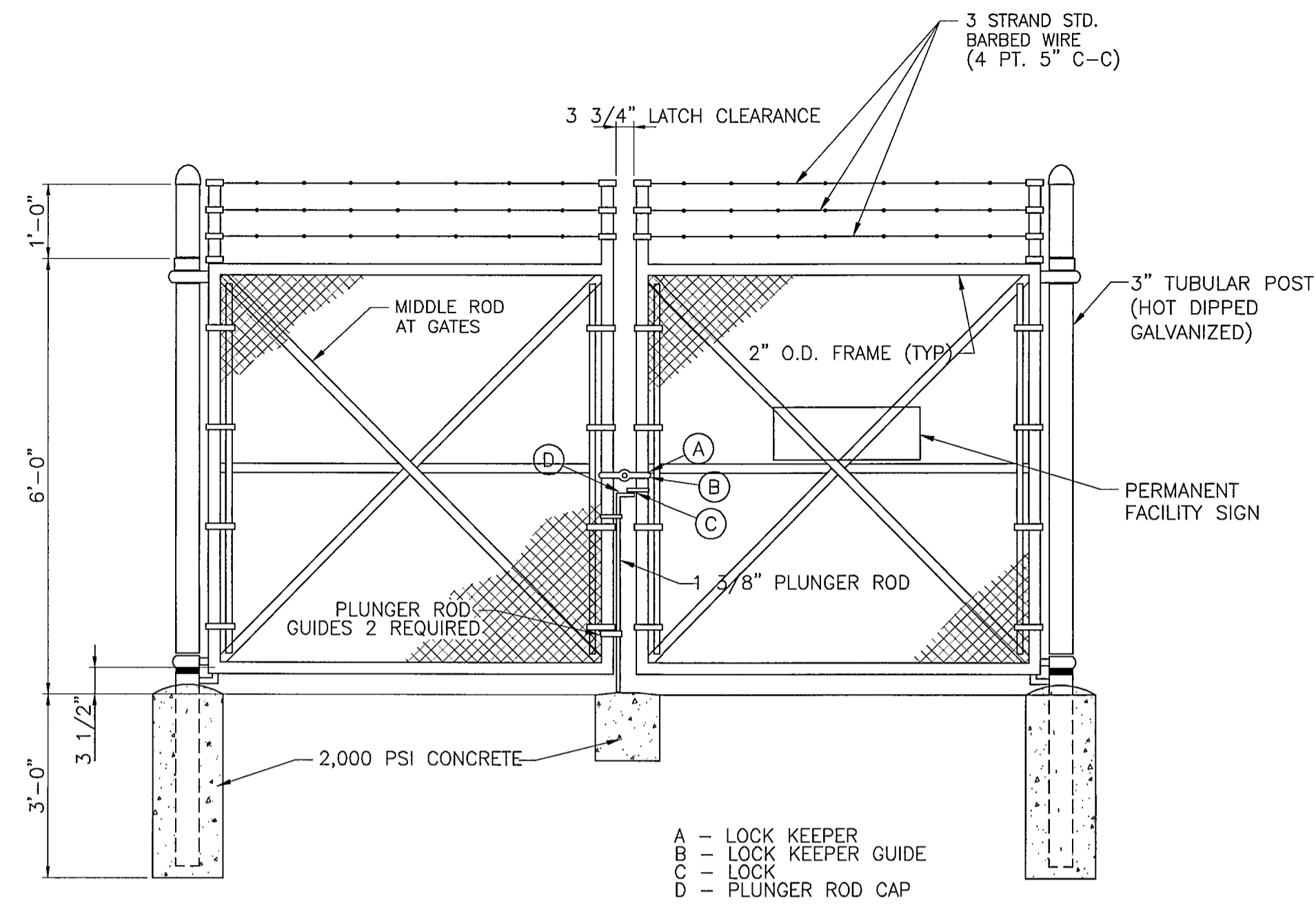
LIFT STATION PLAN AND SECTIONS

DRAWN BY SRG	DESIGNED BY MAP	CHECKED BY MAP	SHEET NO. LS-2
JOB NUMBER COR 12-001	DATE JUNE 2013	SCALE NOTED	

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



CHAIN LINK FENCE DETAIL
NOT TO SCALE



NOTE:
PROVIDE BALCK VINYL COATING ON CHAIN LINK FENCE.

CHAIN LINK FENCE GATE DETAIL
NOT TO SCALE

NOTES:

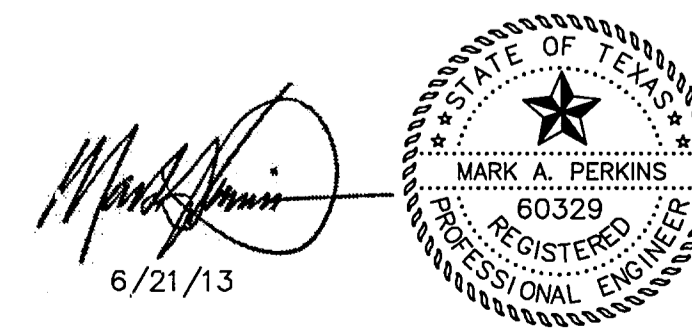
REQUIREMENTS FOR COATING OF INTERIOR SURFACES OF WETWELL IF CON SHIELD ADDITIVE IS NOT USED:


1. SURFACE PREPARATION: AS REQUIRED BY THE MANUFACTURER FOR CAST-IN-PLACE CONCRETE SURFACES.
2. PRODUCT AND MANUFACTURER: PROVIDE ONE OF THE FOLLOWING:
 - a. CHESTERTON
 - 1) PRIMER/FINISH: PF&L 2300 - TROWEL-APPLIED @ 1/16 TO 1/8"
 - b. RAVEN LINING SYSTEMS INC.
 - 1) PRIMER: AQUATAPOXY A-10 - 4 TO 8 MILS DFT
 - 2) FINISH: RAVEN 405 - 125 TO 200 MILS DFT; 2 COATS REQUIRED TO ACHIEVE TOTAL DFT OF 125 MILS
 - c. SPECTRASHIELD
 - 1) PRIMER: MOISTURE-DISPLACEMENT BARRIER PRIMER, MODIFIED POLYMER MOISTURE BARRIER, POLYURETHANE/POLYMERIC BLEND FOAM "SURFACER"
 - 2) FINISH: MODIFIED POLYMER FINAL CORROSION BARRIER
 - d. SAUREISEN
 - 1)PRIMER: SAUREISEN 210S - TO 80 MILS DFT
 - 2)FINISH: SAUREISEN 210 GLAZE - @ 20 MILS DFT
 - e. TNEMEC
 - 1)PRIMER: TNEMEC 218 MORTAR CLAD @ 1/16"
 - 2)FINISH: SERIES 436 PERMA-GLAZE FR @ 60-75 MILS DFT (TOTAL APPROX. 125 MILS DFT)
 - f. ENDURA-FLEX
 - 1) PRIMER: ENDURA-FLEX EF1988; EXPANDED FILM @ 200 MILS; SOLID FILM @ 50 MILS

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

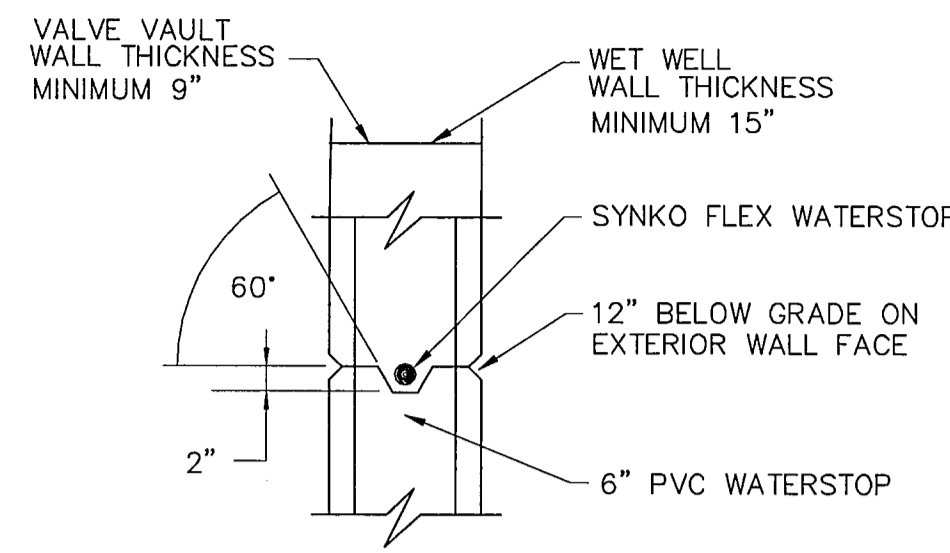
ONE INCH

AS-BUILT APRIL 2014
INFORMATION PROVIDED BY CONTRACTORS
(NOT FIELD VERIFIED)

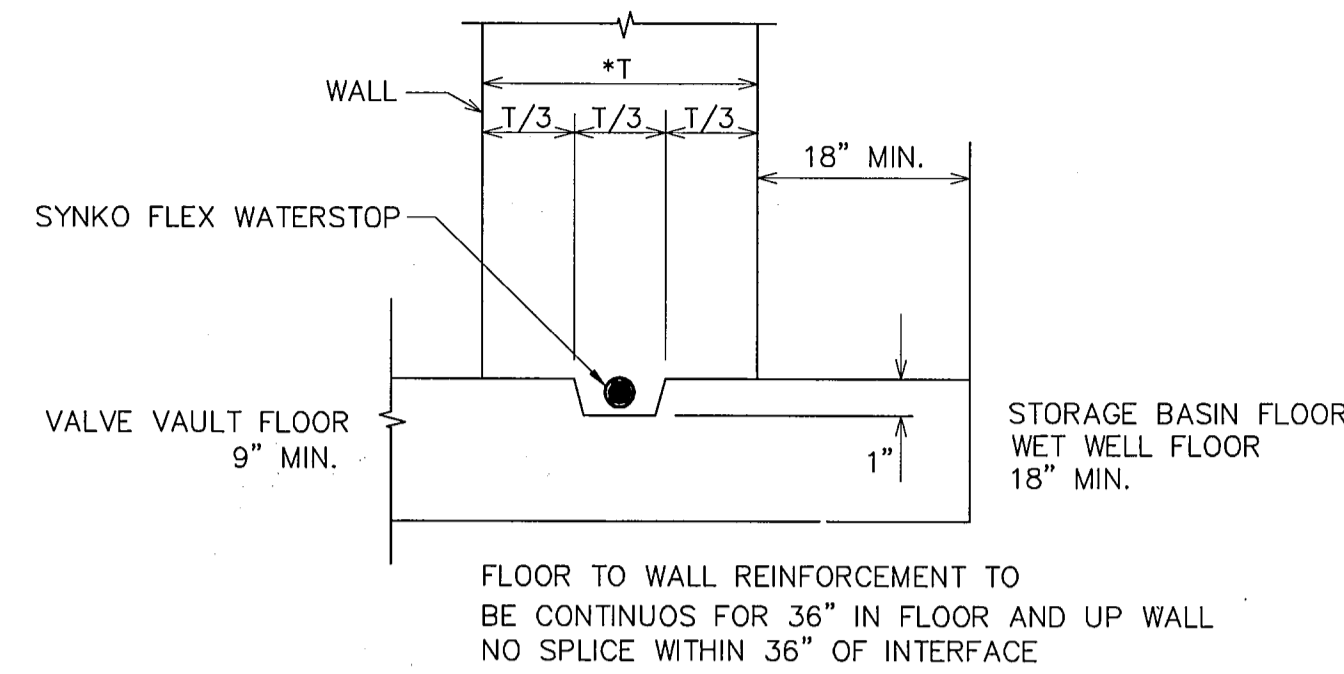


 PERKINS ENGINEERING CONSULTANTS, INC. <small>TBPE REGISTRATION NO. F-8699</small>			
DEVELOPMENT PLANS FOR BREEZY HILL PHASE I <small>ROCKWALL, TEXAS</small>			
LIFT STATION DETAILS			
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
SRG	MAP	MAP	LS-3
JOB NUMBER	DATE	SCALE	
COR 12-001	JUNE 2013	NOTED	

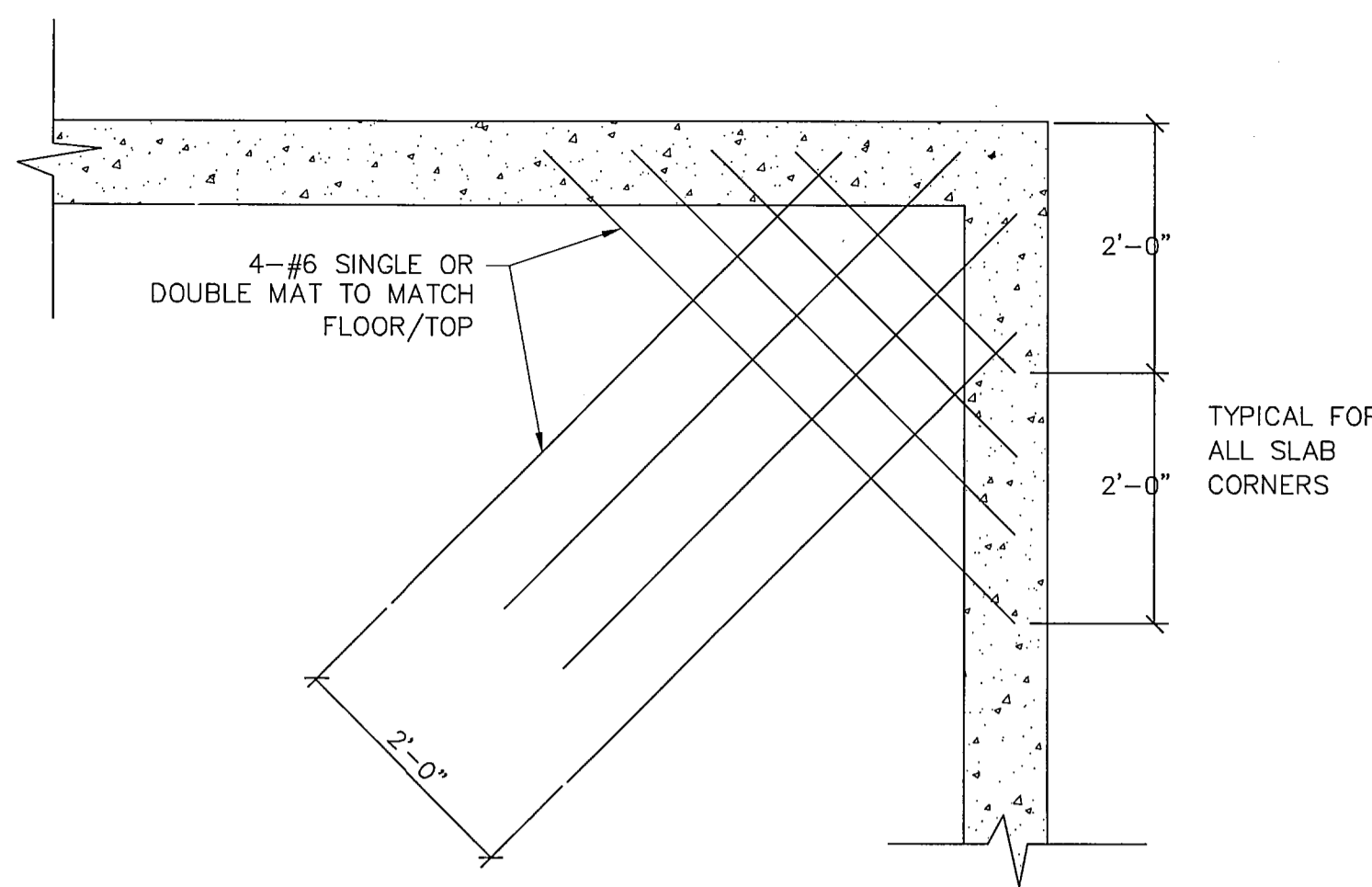
WALLS SECTION



WALL - FLOOR CONNECTION

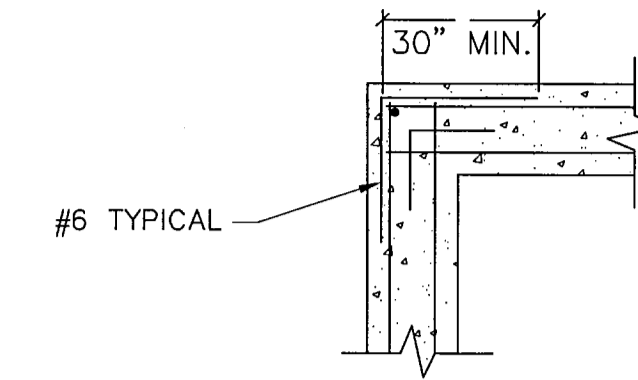


WATER-STOP CONSTRUCTION
NOT TO SCALE

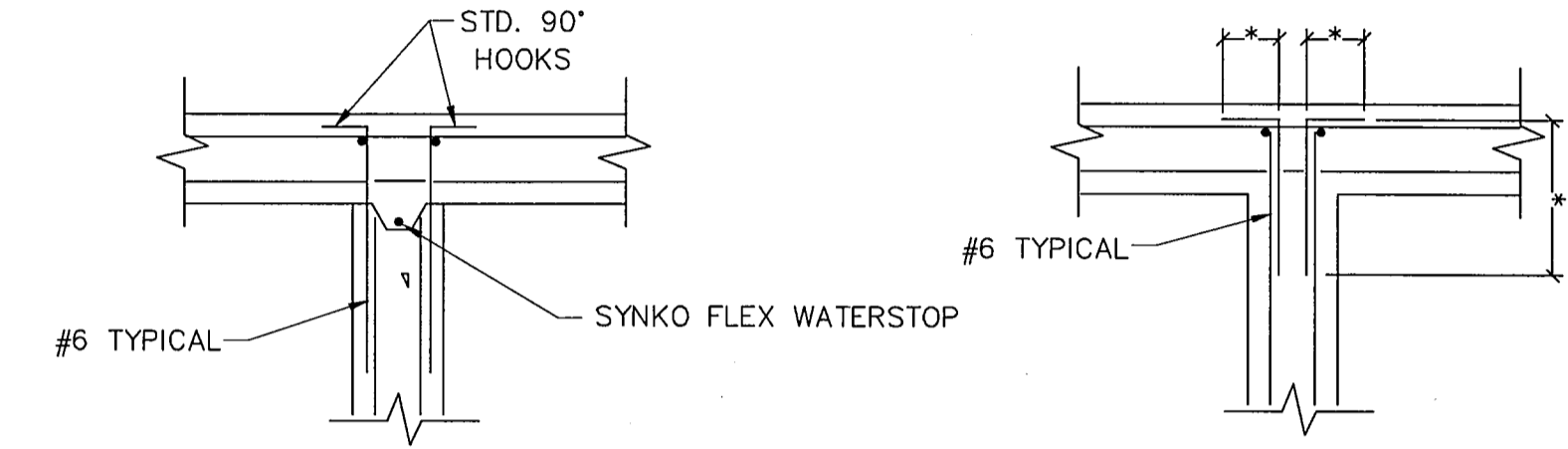


ADDITIONAL REINFORCING @ EXTERIOR CORNER
NOT TO SCALE

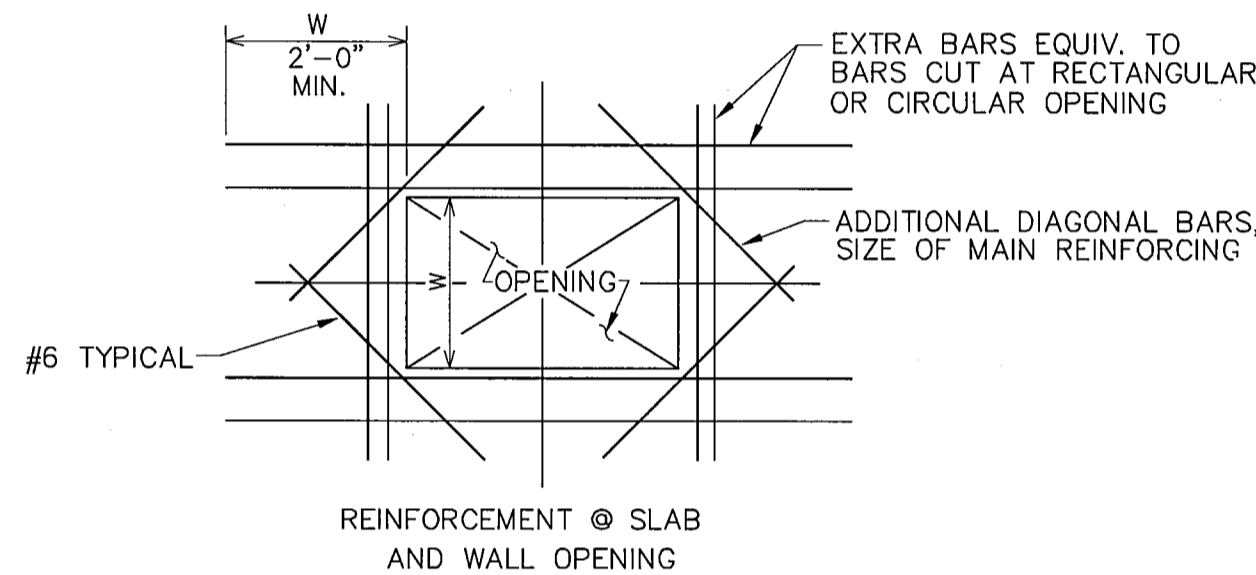
* MINIMUM LAP LENGTH
ALL 90° BENDS AS SHOWN UNLESS OTHERWISE INDICATED ON DESIGN DRAWINGS. INSTALL ADDITIONAL VERTICAL BARS AT HOOKS AS SHOWN.



TYPICAL CORNER REINFORCEMENT

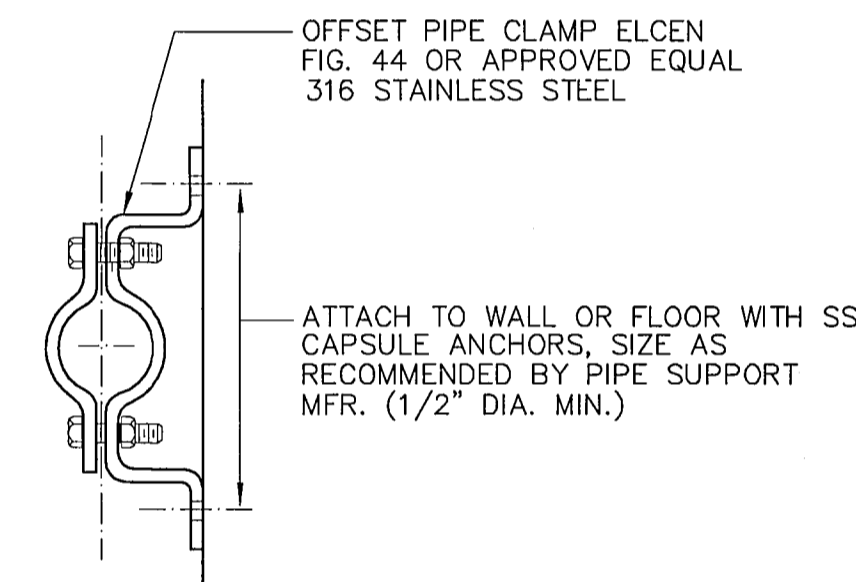


TYPICAL INTERSECTION FOR DOUBLE CURTAIN

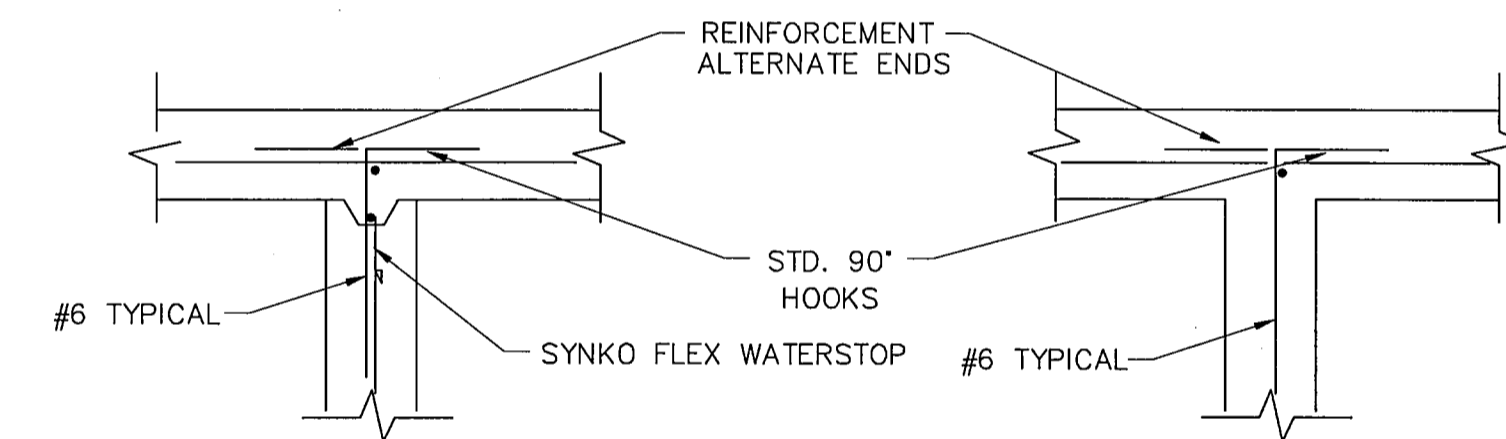


- NOTES:
1. REINFORCING AS INDICATED ON SECTION DETAIL
2. W=DIMENSION OF OPENING PERPENDICULAR TO BARS CUT.

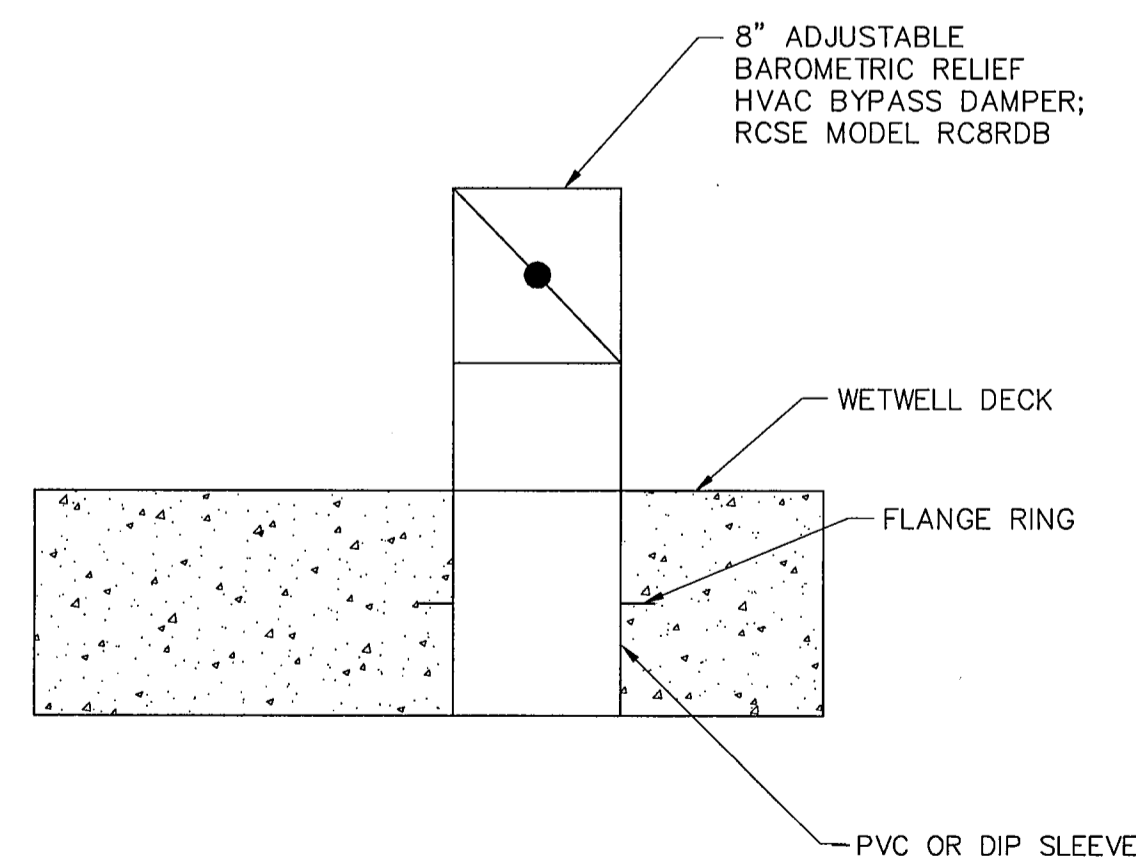
ADDITIONAL REINFORCING AROUND OPENINGS
NOT TO SCALE



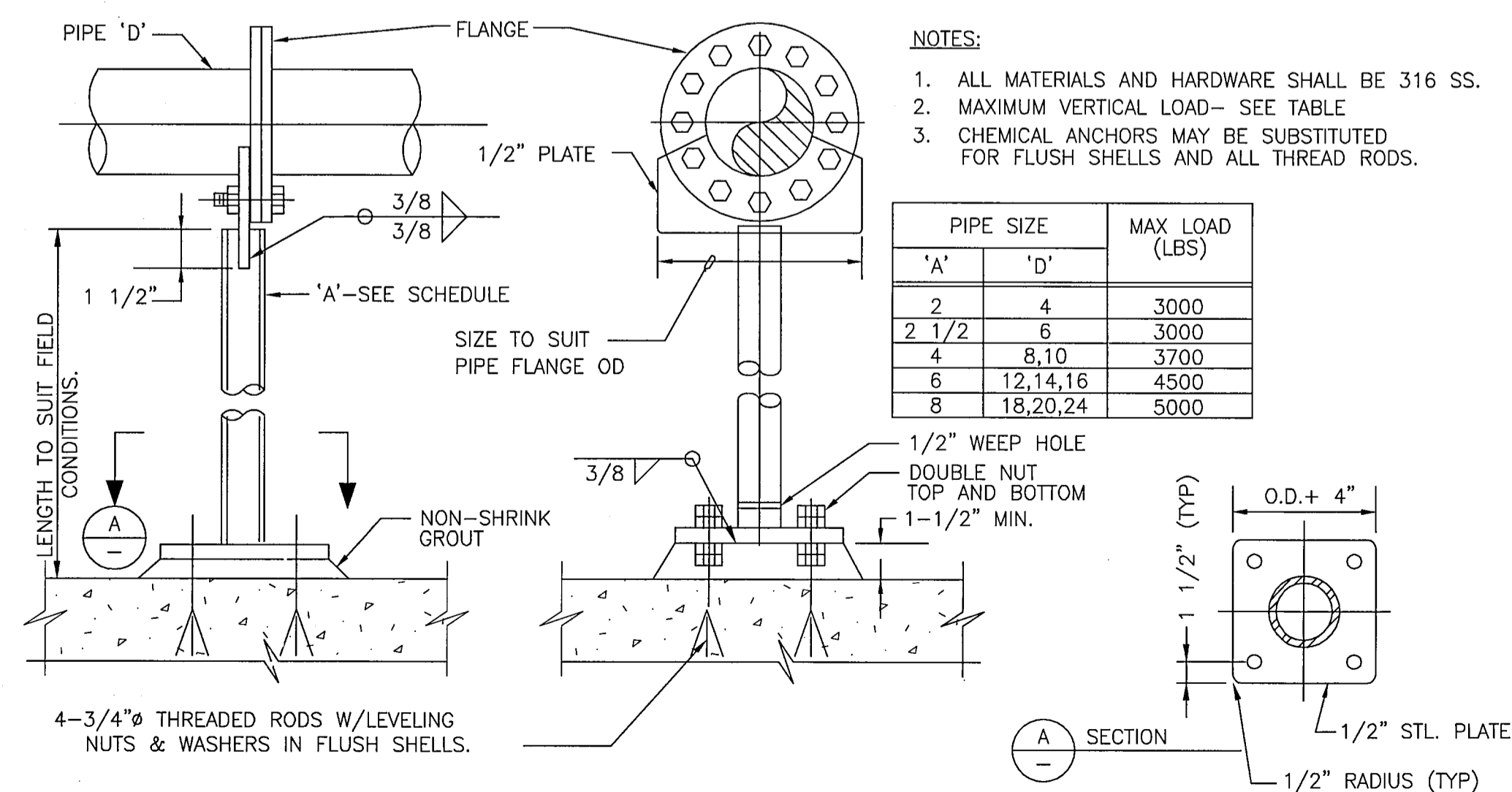
TYPICAL OFFSET PIPE SUPPORT
NOT TO SCALE



CORNER REINFORCEMENT DETAILS
NOT TO SCALE

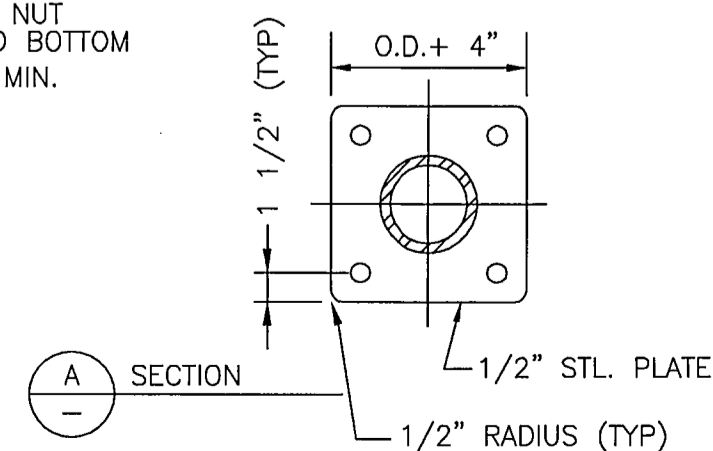


WETWELL VENT
NOT TO SCALE



- 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 APRIL 2014
INFORMATION PROVIDED BY CONTRACTORS
(NOT FIELD VERIFIED)

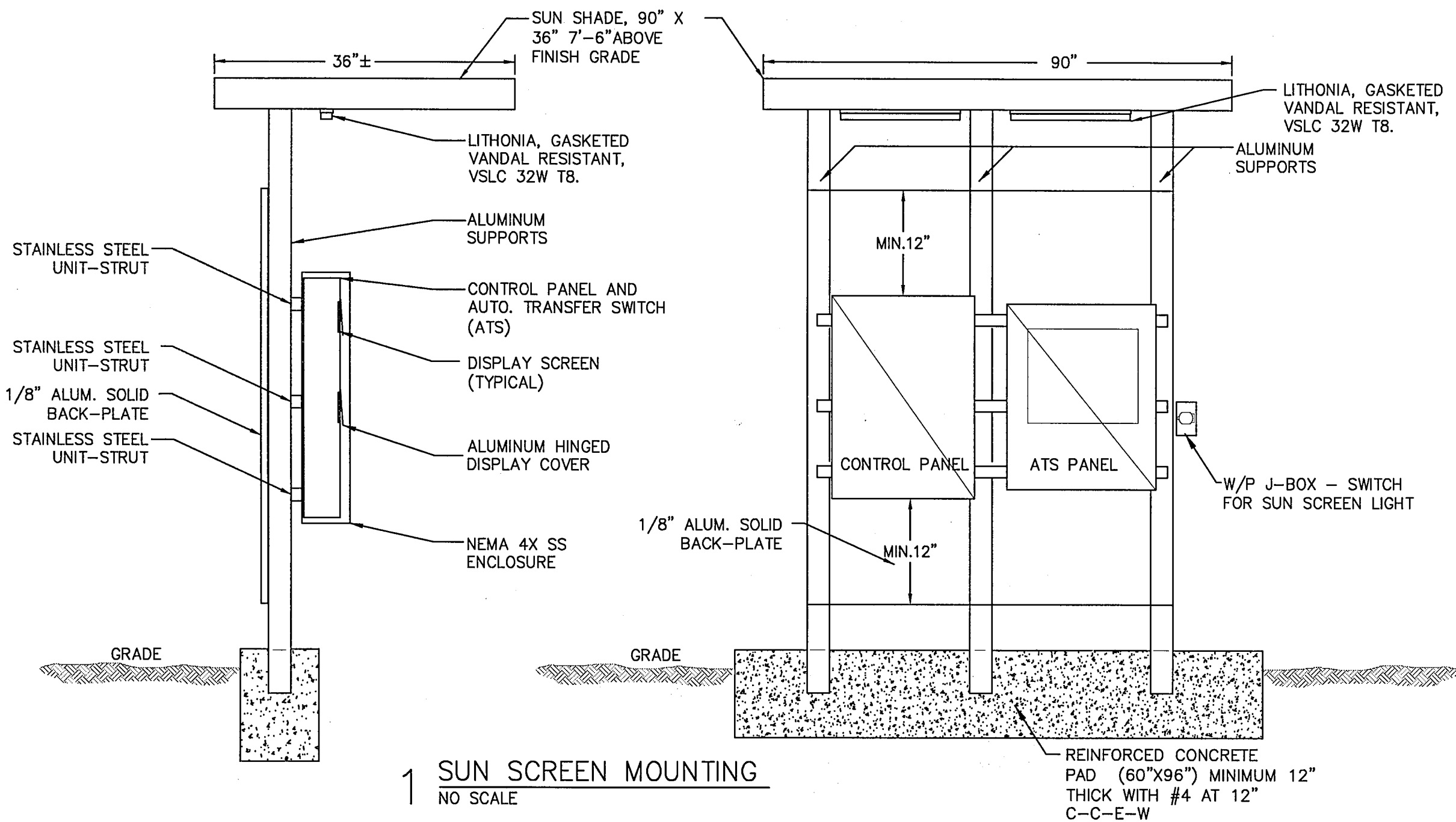
6/21/13
MARK A. PERKINS
REGISTERED PROFESSIONAL ENGINEER
60329

PERKINS ENGINEERING CONSULTANTS, INC.
TEPE REGISTRATION NO. F-8699
DEVELOPMENT PLANS FOR
BREEZY HILL PHASE I
ROCKWALL, TEXAS

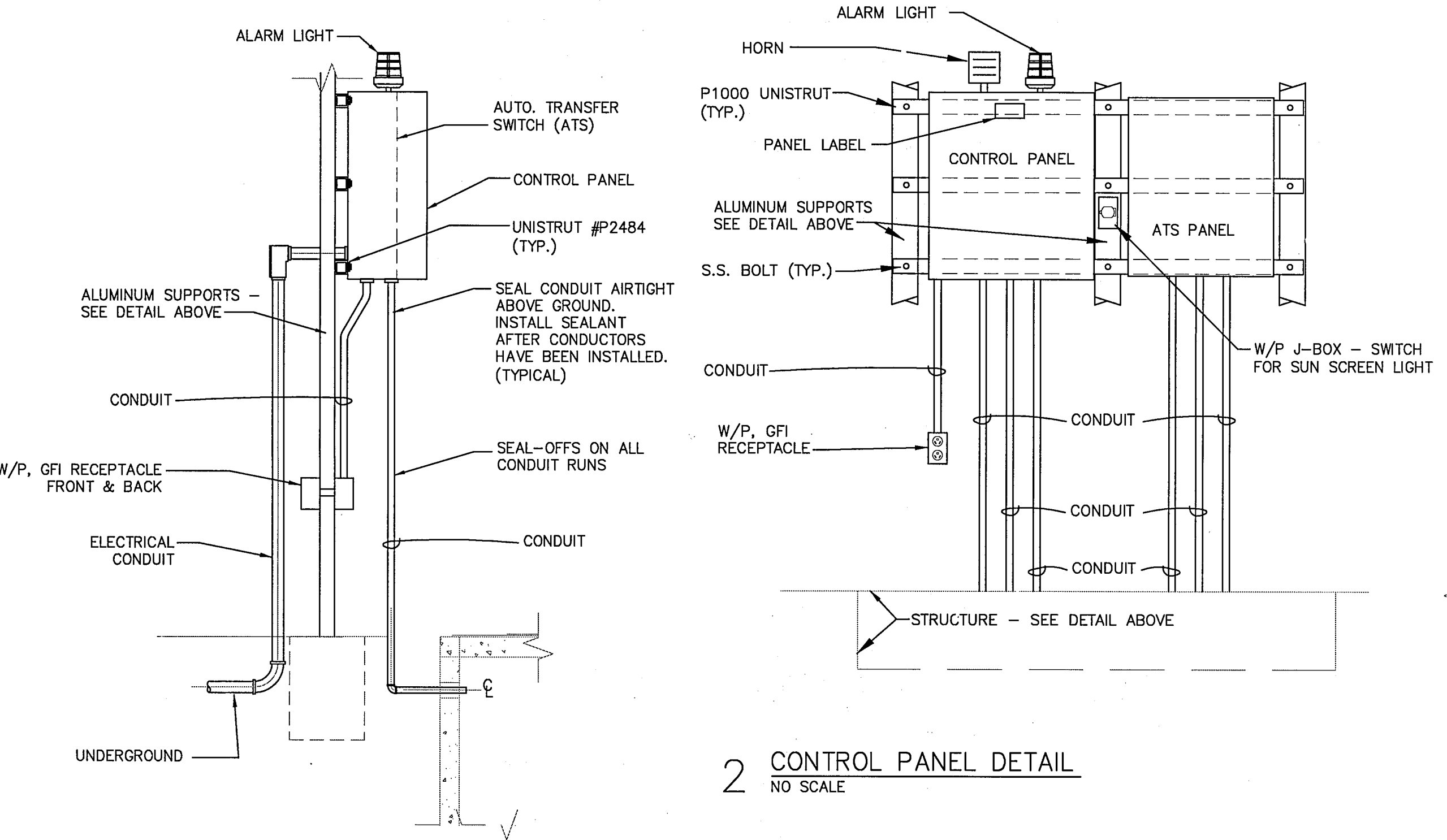
LIFT STATION DETAILS

DRAWN BY SRG	DESIGNED BY MAP	CHECKED BY MAP	SHEET NO.
JOB NUMBER COR 12-001	DATE JUNE 2013	SCALE NOTED	LS-4

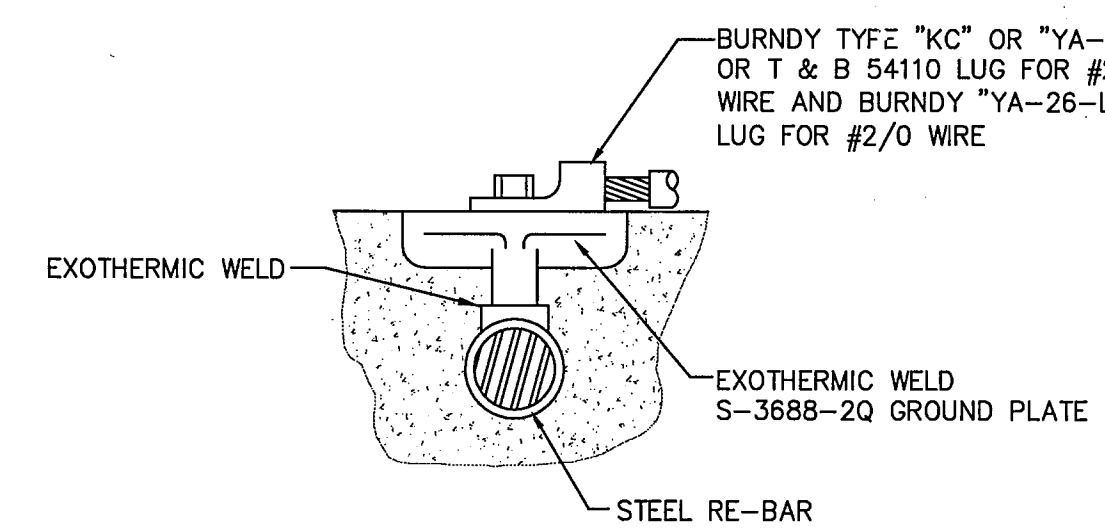
Y:\ACTIVE\PROJECTS\ACTIVE-DATA\CURRENT-PROJ\ECIS\Perkins-Rockwall-LS-Breezy-Hill-2012\CAD\CAD\BreezyHill-Lit-Station.dwg May 15, 2013 - 10:13am User: TommyT



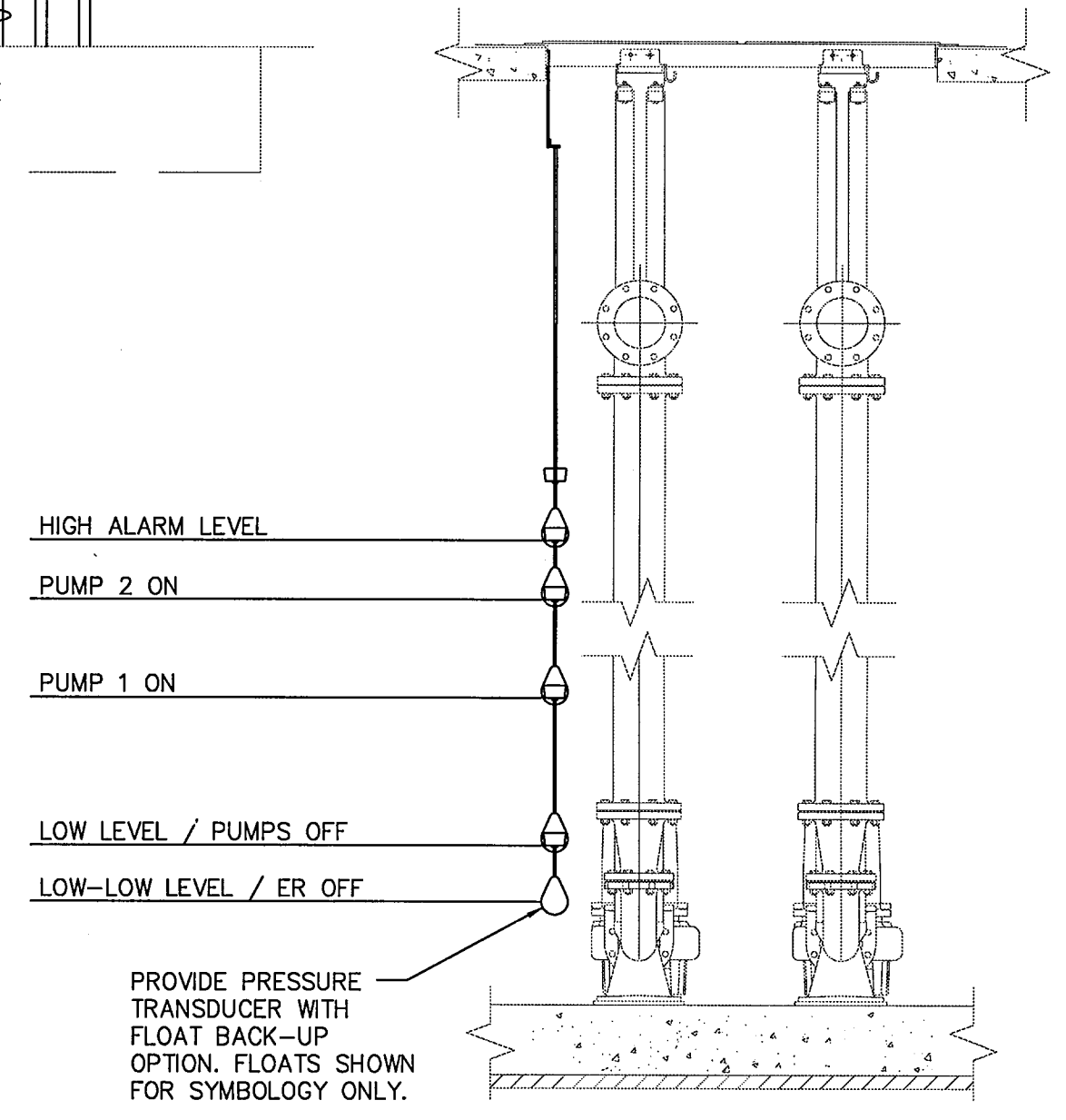
1 SUN SCREEN MOUNTING
NO SCALE



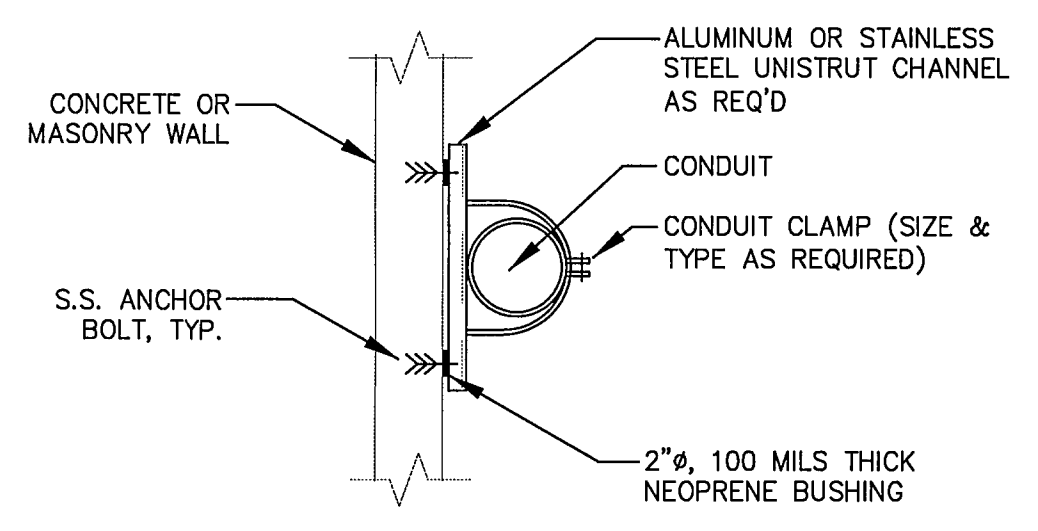
2 CONTROL PANEL DETAIL
NO SCALE



3 GROUNDING PAD IN SLAB DETAIL
NO SCALE

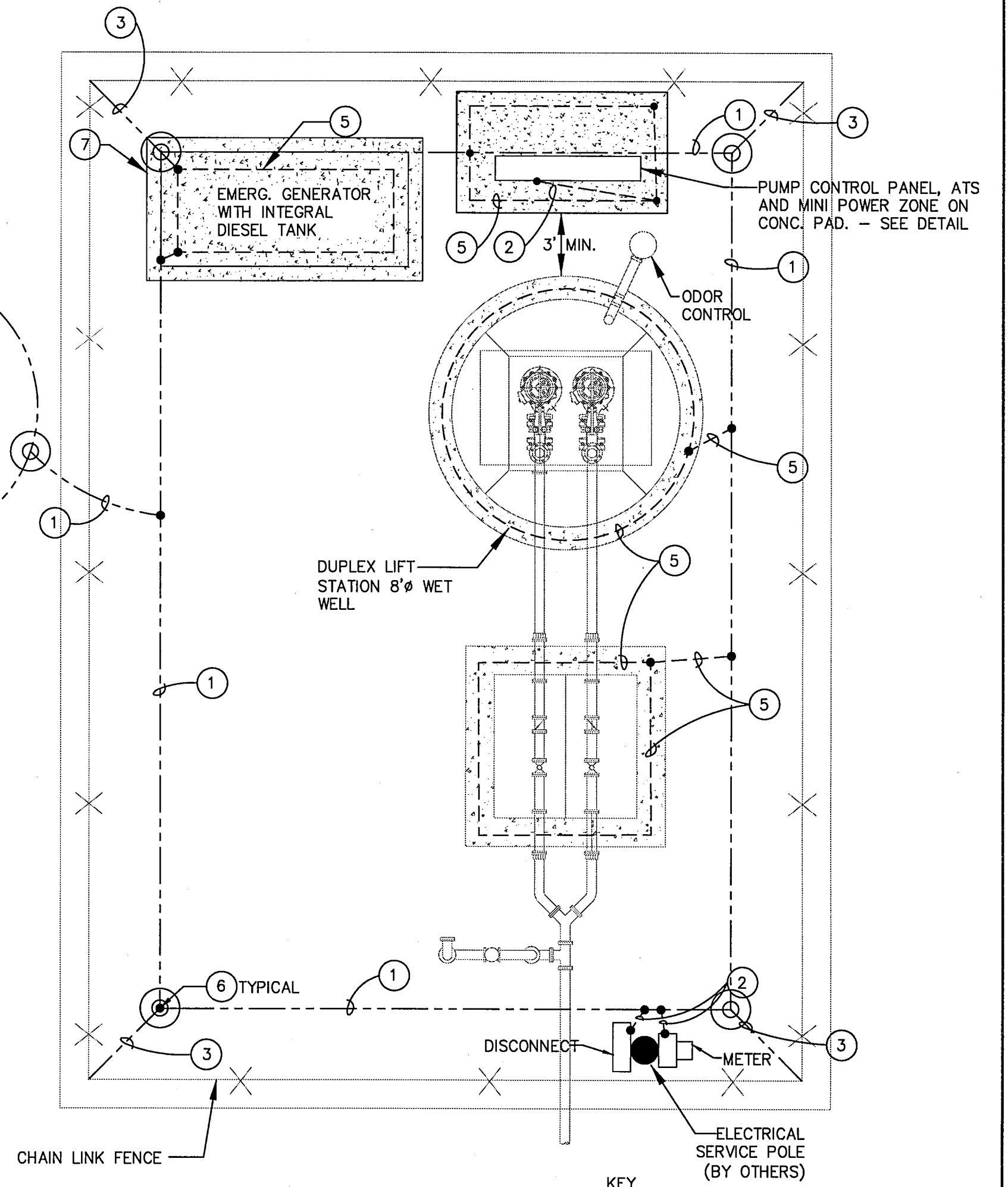
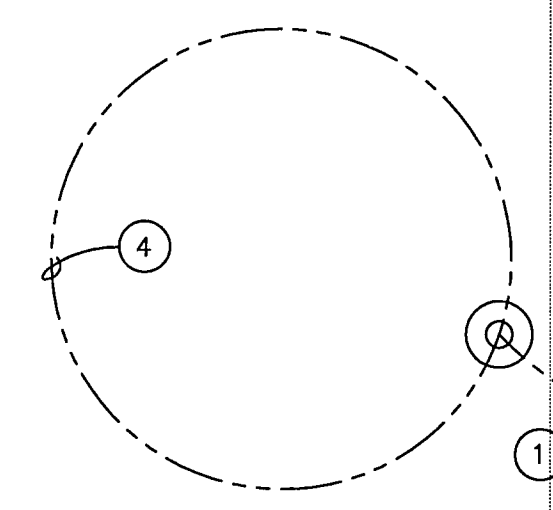


4 ELECTRICAL SECTION- WET WELL
NO SCALE



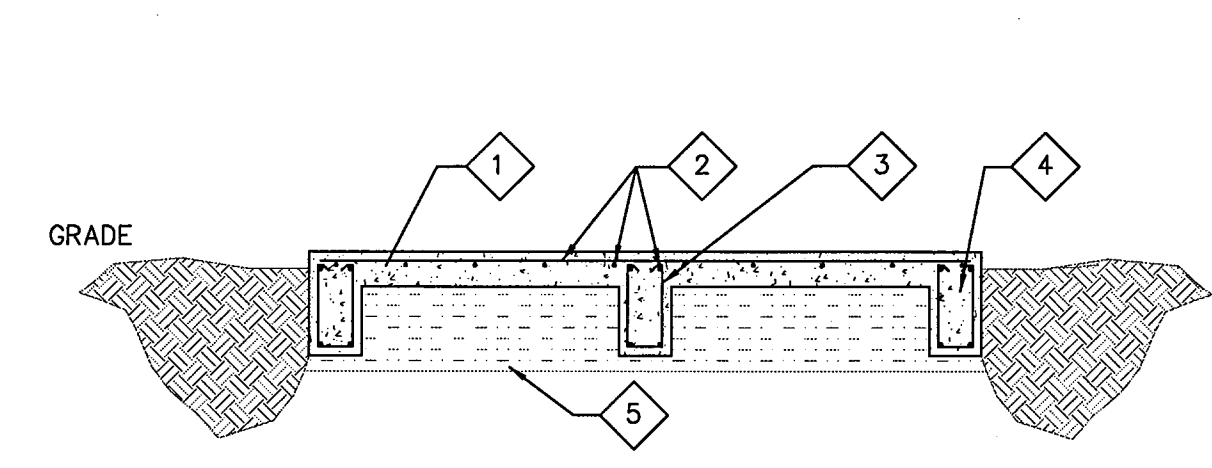
5 CONDUIT SUPPORT AT WALL DETAIL
NO SCALE

- GROUNDING NOTES BY SYMBOL "O"**
- ① 1/0 BORE COPPER, 36" DEEP LOOP, AT 36" FROM EDGE OF CONSTRUCTION OR FENCE.
 - ② #4 BARE COPPER BONDING FOR ALL ELECTRICAL EQUIPMENT DEVICES AND GROUND SYSTEM.
 - ③ #4 BARE COPPER BONDING/GROUNDING SYSTEM TO FENCE.
 - ④ 10FT DIAMETER COIL OF 1/0 BARE COPPER. PROVIDE XYZ COORDINATES ON RECORD DRAWINGS. COORDINATE EXACT LOCATION WITH OWNER.
 - ⑤ 1/0 BARE COPPER FROM GROUND ROD TO GROUNDING CONDUCTOR AND REBAR IN CONCRETE STRUCTURES.
 - ⑥ 3/4" x 10'-0" COPPER CLAD GROUND ROD
 - ⑦ CONCRETE PAD FOR GENERATOR, COORDINATE EXACT LOCATION WITH ALL TRADES. MAINTAIN REQUIRED CLEARANCE



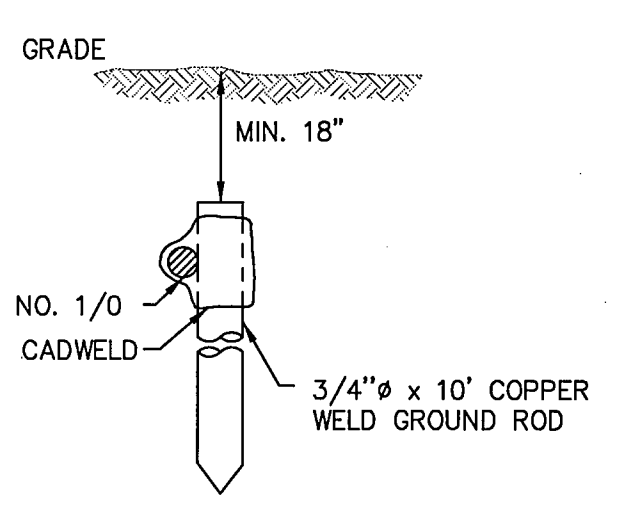
7 SITE GROUNDING PLAN
SCALE: 1"=4'
FOR DIAGRAMMATICAL REPRESENTATION ONLY
COORDINATE EXACT LOCATION OF EQUIPMENT WITH CIVIL PLAN.

- KEY**
- ⊙ = GROUND ROD LOCATION PER DETAILS
 - = CONNECTION PER DETAILS



8 GENERATOR FOUNDATION
NO SCALE

- FOUNDATION NOTES "◇" BY SYMBOL**
- ① 9" CONCRETE FOUNDATION, CONCRETE 4,000 PSI @ 28 DAYS (10'-6" X 5'-6").
 - ② #4 RE-BAR, FOR BEAMS AND GRID. GRID SPACING 12" C-C-E-WO.
 - ③ #3 RE-BAR STURRUP.
 - ④ BEAM DIMENSION 9" WIDE, 18" DEEP.
 - ⑤ 18" SELECT FILL.

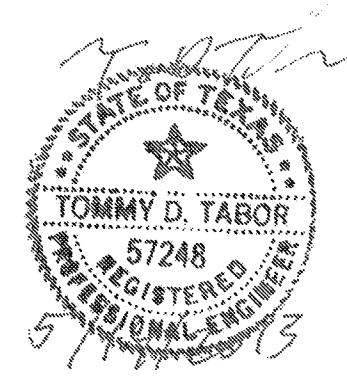


6 GROUNDING ROD DETAIL
NO SCALE

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INFORMATION PROVIDED BY CONTRACTORS
(NOT FIELD VERIFIED)

APPLICABLE CODES AND STANDARDS

NFPA 820
2008 NATIONAL ELECTRICAL CODE
TCEQ CHAPTER 217

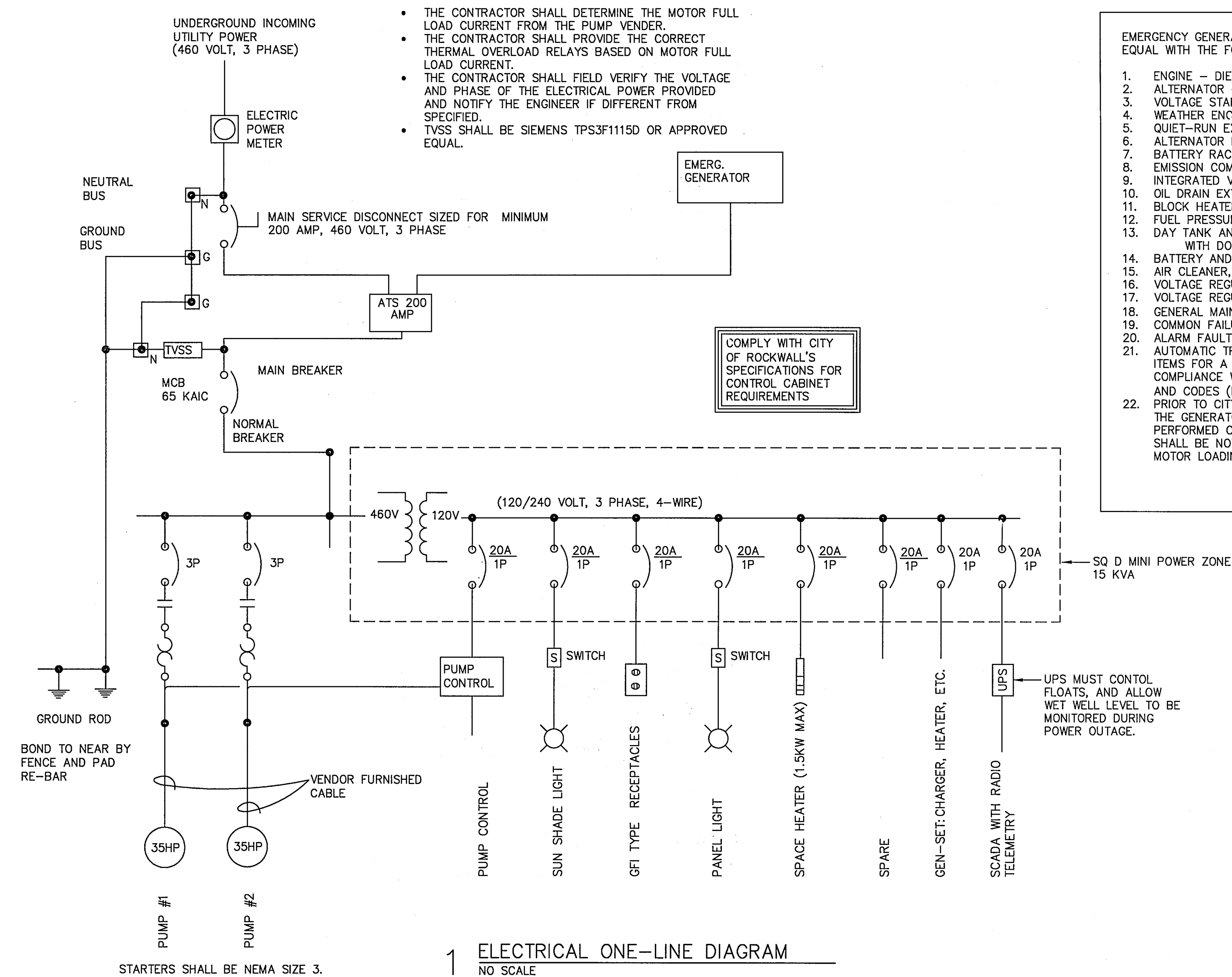


PERKINS ENGINEERING CONSULTANTS, INC. T. TABOR CONSULTING, PLLC (5279) 1301 DEBBIE LANE, SUITE 102-152 MANSFIELD, TEXAS 76063 972-896-6989 TBPE REGISTRATION NO. F-8599		TTC-PLLC T. TABOR CONSULTING, PLLC (5279) 1301 DEBBIE LANE, SUITE 102-152 MANSFIELD, TEXAS 76063 972-896-6989	
DEVELOPMENT PLANS FOR BREEZY HILL PHASE I ROCKWALL, TEXAS			
DETAILS & TECHNICAL DATA			
DRAWN BY MLH / KF	DESIGNED BY TDT	CHECKED BY TDT	SHEET NO. LSE - 1
JOB NUMBER COR 12-001	DATE MAY 2013	SCALE NOTED	

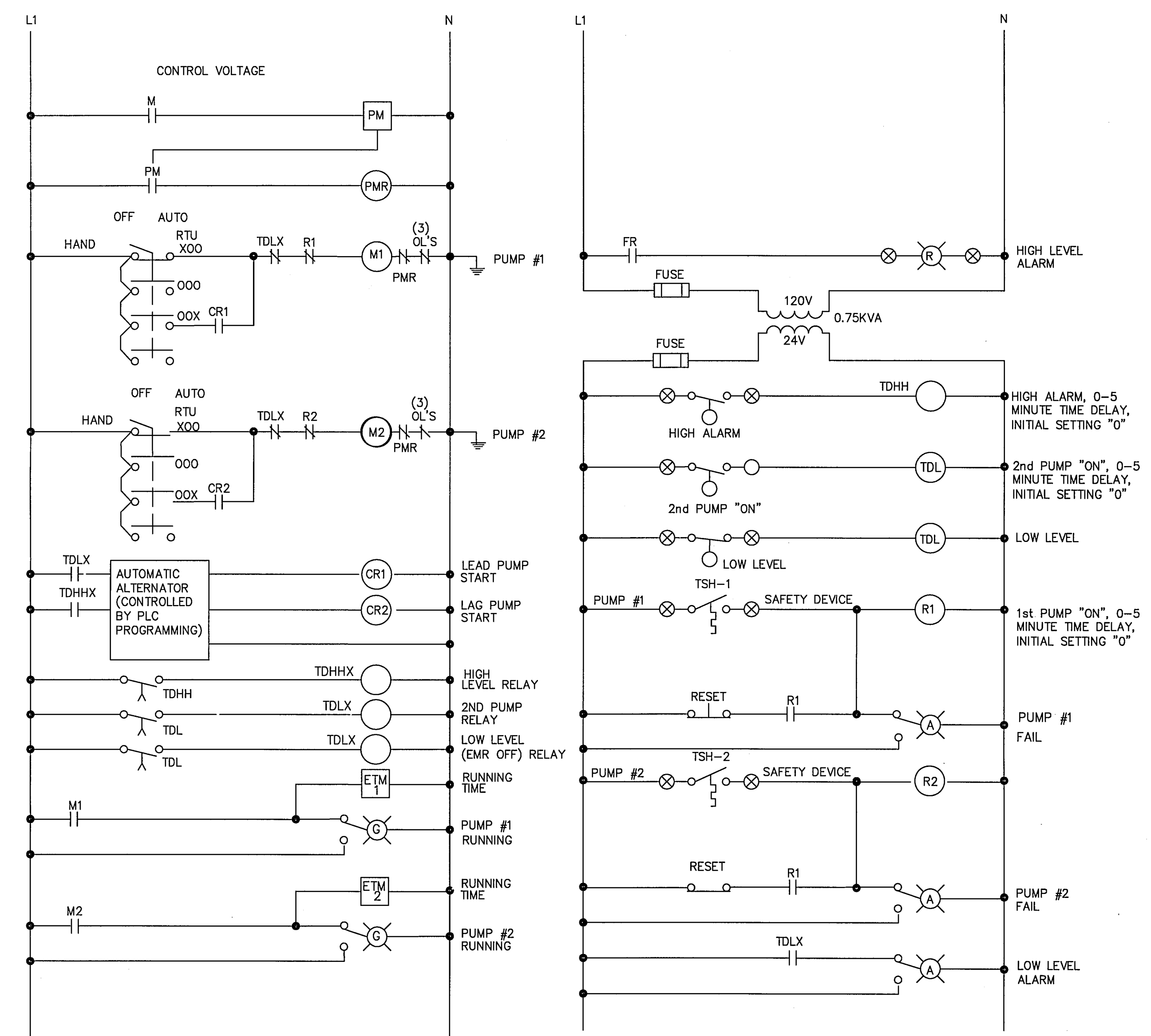
BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING. CHECK SCALE AND ADJUST ACCORDINGLY.

ONE INCH

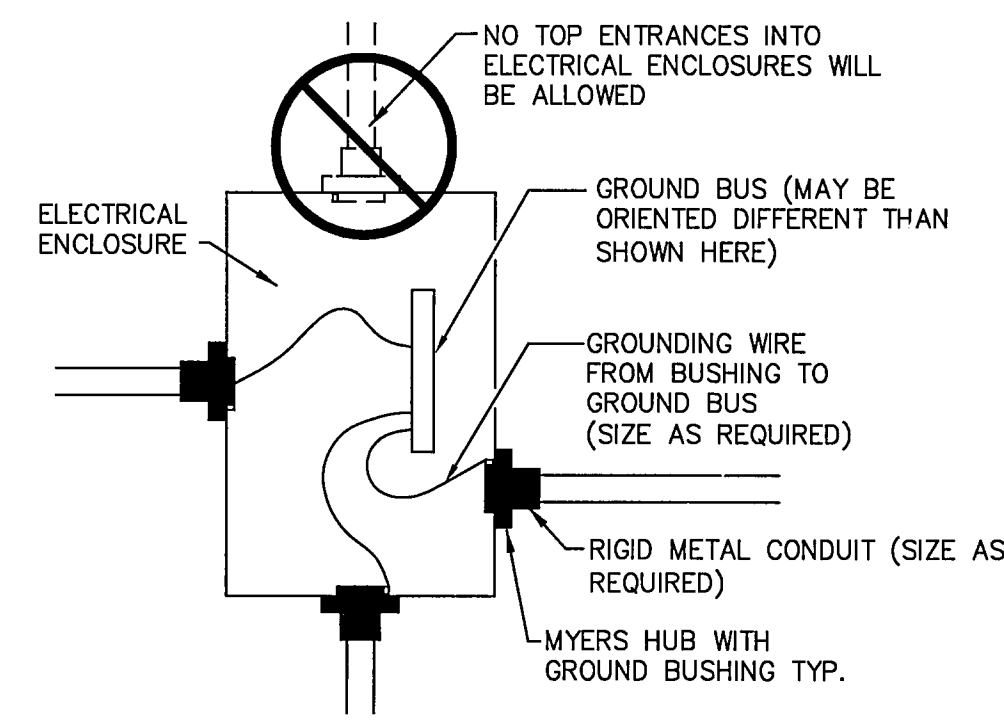
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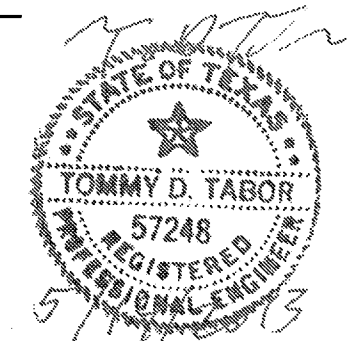
- EMERGENCY GENERATOR SHALL BE KOHLER 150REOZJ OR EQUAL WITH THE FOLLOWING:
- ENGINE - DIESEL OR EQUAL
 - ALTERNATOR
 - VOLTAGE STARTERS
 - WEATHER ENCLOSURE
 - QUIET-RUN EXHAUST SYSTEM
 - ALTERNATOR PROTECTION
 - BATTERY RACK & CABLES
 - EMISSION COMPLIANT ENGINE
 - INTEGRATED VIBRATION ISOLATION
 - OIL DRAIN EXTENSION
 - BLOCK HEATER
 - FUEL PRESSURE GAGE
 - DAY TANK AND MINIMUM 500 GAL FUEL TANKS WITH DOUBLE CONTAINMENT SYSTEM
 - BATTERY AND BATTERY CHARGER
 - AIR CLEANER, HEAVY DUTY
 - VOLTAGE REGULATION 1%
 - VOLTAGE REGULATOR SENSING, 3-PHASE
 - GENERAL MAINTENANCE KIT (FILTER SET)
 - COMMON FAILURE RELAY KIT
 - ALARM FAULT SYSTEM CONNECTED TO SCADA
 - AUTOMATIC TRANSFER SWITCH AND RELATED ITEMS FOR A COMPLETE OPERATING SYSTEM IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS AND CODES (KOHLER OR APPROVED EQUAL)
 - PRIOR TO CITY OF ROCKWELL ACCEPTANCE OF THE GENERATOR, A LOAD BANK TEST SHALL BE PERFORMED ON THE GENERATOR SYSTEM. LOAD SHALL BE NOT LESS THAN PROJECTED PUMP MOTOR LOADINGS.



QuickSize Generator Set Sizing		QuickSize Generator Load Profile	
Project Customer	Rockwall Breezy Hill LS	Project Customer	Rockwall Breezy Hill LS
Generator Set		Generator Set	
Model No.	150REOZJB	Model No.	150REOZJB
Engine	6068HF150 (Diesel)	Engine	6068HF150 (Diesel)
Alternator	4S15	Alternator	4S15
Performance Summary		Load Profile	
LN / LL Voltage	277/480 volts	Qty	Run kW
Frequency	60 hertz		Run kVA
Phase(s)	3 phase		Run pF
			Start kW
			Start kVA
			Volt Dip
			Freq Dip
			Volt (L-N) THD
Generator Rating @ 130C Rise	160.00 kW	Step #1 Load Step #1	
Generator Derated Rating	157.51 kW	Pump #1 (35.00 HP, 3 phase, code J, loaded motor, w/ A.T.L. starting)	
Total Running Power	59.00 kW	Rated motor torque from full voltage starting = 64.7%	
Percent of Available kW Used	37.46 %	1	29.50 34.65 0.85 108.34 264.25
Alternator Starting kVA	354.29 kVA @ 20% dip	Step #2 Load Step #2	
Peak Starting kVA	293.57 kVA	Pump #2 (35.00 HP, 3 phase, code J, loaded motor, w/ A.T.L. starting)	
Maximum Voltage Dip	19.71 %	Rated motor torque from full voltage starting = 64.5%	
Maximum Frequency Dip	11.57 % (20% allowed)	1	29.50 34.65 0.85 108.34 264.25
Voltage THD	0.00 % (10% allowed)	Step Totals	29.50 34.65 0.85 108.34 264.25 19.71 11.57 0.0%/0.0%/0.0%
		Cum. Totals	59.00 69.30 0.85



AS-BUILT APRIL 2014
INFORMATION PROVIDED BY CONTRACTORS (NOT FIELD VERIFIED)



PERKINS ENGINEERING CONSULTANTS, INC.
T. TABOR CONSULTING, PLLC (5279)
1301 DEBBIE LANE, SUITE 102-152
MANSFIELD, TEXAS 76063
972-896-6989

DEVELOPMENT PLANS FOR
BREEZY HILL PHASE I
ROCKWALL, TEXAS

ELECTRICAL ONE-LINE & DETAILS

DRAWN BY MLH / KF	DESIGNED BY TDT	CHECKED BY TDT	SHEET NO. LSE - 2
JOB NUMBER COR 12-001	DATE MAY 2013	SCALE NOTED	

NO AIR BUBBLE, PROVIDE PRESSURE TRANSDUCER WITH FLOAT BACK-UP OPTION

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

ONE INCH

ABRIDGED SPECIFICATIONS FOR SEWER LIFT STATION CONTROL PANEL

PROVIDED BY CITY OF ROCKWALL

3/1/10

3/1/10

CITY OF ROCKWALL, TEXAS
SPECIFICATIONS FOR LIFT STATION CONTROL PANEL

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 shall 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 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 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 a Stand Alone Manual Fused Double Throw Safety Switch to allow hard wiring to portable generator to prevent dual operation. 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 250 VAC and 14,000 amps at 480 VAC. The control circuit and the duplex receptacles shall be individually controlled by heavy-duty breakers.

PLC:
The PLC shall be a Schneider Electric TSX Momentum PLC consisting of at least three part numbers:
1) Processor adapter with one RS232 and one I/O Bus port: 171 CCC 760 10
2) Output adapter with one RS232/RS485 port: 172 JNN 210 32
3) 24V DC Base with 16 inputs and 16 outputs: 170 ADM 350 10
Programming shall be programmed by others using Schneider Electric ProWORX32 PLC programming software. The switches shall sense the "OFF", "LEAD", "LAG", "ALARM" levels. As the level in the wet well rises 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. The alternator shall switch when the off level is reached. If the level continues to rise, alarm functions shall be activated. All inputs and outputs shall be wired to a terminal strip at bottom of cabinet.

RADIO EQUIPMENT:
SCADA: Equipment for SCADA shall be Kmark part # TR-Y159-C50-P-ICC. Contact number for Kmark is [redacted]. Contact them for pricing and equipment dimensions and power requirements in the panel and on rack.

Auxiliary Equipment:
HOA Switches: A three position HOA switch shall be provided on the inner dead front for each pump.

Run Indicators: A run pilot indicator shall be provided on the inner dead front. All indicator lights shall be push to test.

Elapsed Time: This function shall be provided by the PLC.

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 Volt or equivalent.

The System must be able to transmit all alarms and wet well levels when on backup power.

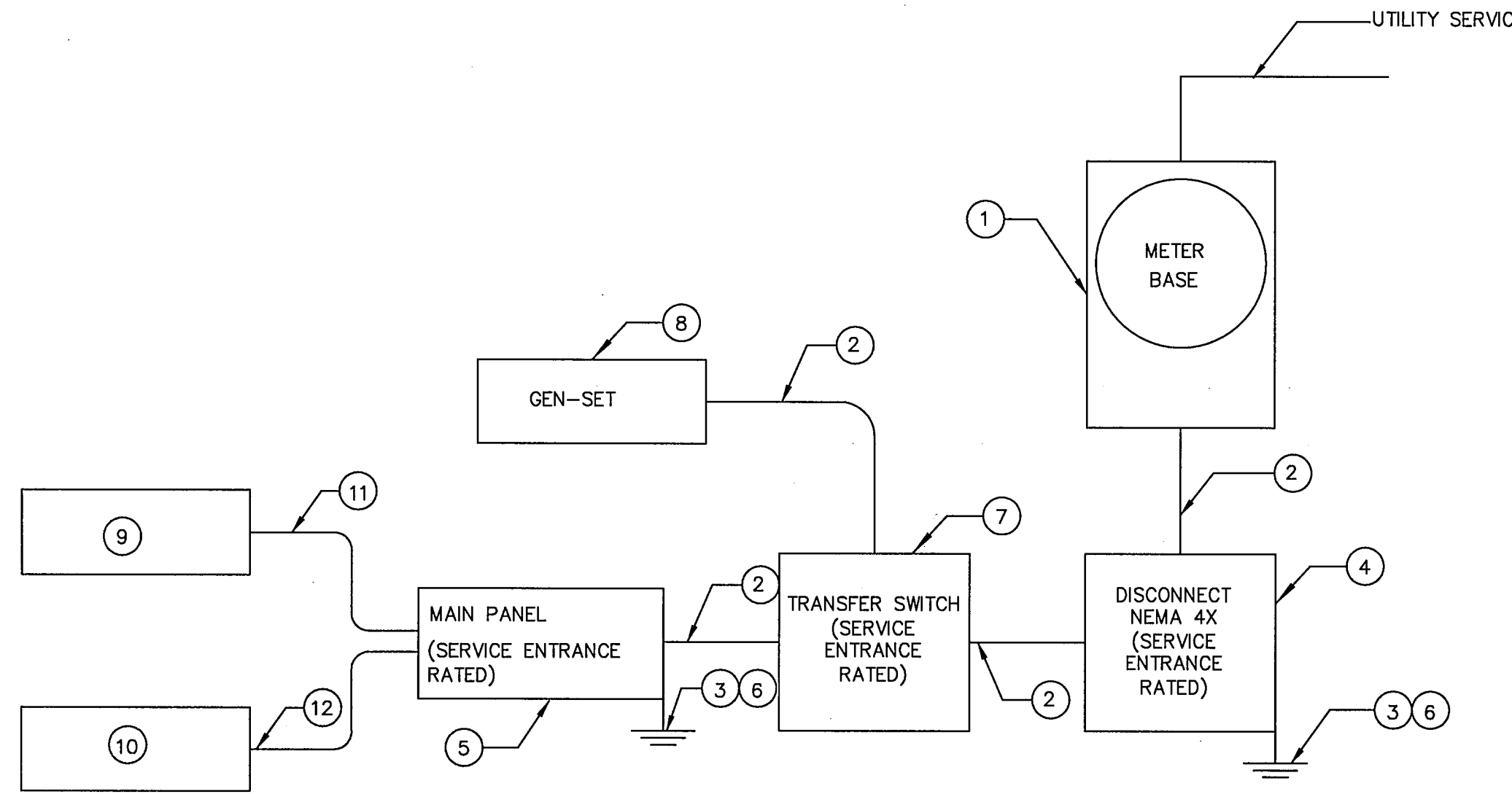
Motor Protection: A control and status module shall sense either motor over temperature or seal leakage, and shall turn off the pump, lock out the pump, and send an alarm.

Miscellaneous:

NO AIR BUBBLE, PROVIDE PRESSURE TRANSDUCER WITH FLOAT BACK-UP OPTION

REVISED PHONE # 817-416-8881 SCOTT BEREMAN

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



NOTES BY SYMBOL

- 1 3-PHASE, NEW UTILITY METER
- 2 CONDUCTORS, FROM METER TO DISCONNECT IN CONDUIT.
- 3 PROVIDE 10 FT GROUND ROD AND GROUND WIRE.
- 4 SERVICE ENTRANCE RATED NEMA 4R DISCONNECT (3-PHASE).
- 5 SERVICE ENTRANCE RATED MAIN PANEL, COPPER BUSSING, 3-PHASE, WITH MINIMUM OF 2-3POLE UNUSED SPACES IN PANEL AT COMPLETION OF CONSTRUCTION.
- 6 PROVIDE BONDING FROM METER TO MAIN PANEL.
- 7 SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH, NEMA 4X SS, 3-PHASE.
- 8 EMERGENCY GENERATOR.
- 9 LIFT STATION PUMP CONTROL PANEL.
- 10 MINI POWER ZONE (15KW) IF SERVICE IS 480
- 11 CONDUCTORS TO LIFT STATION PUMP CONTROL PANEL IN CONDUIT.
- 12 CONDUCTORS TO MINI POWER ZONE (IF REQUIRED) IN CONDUIT.

1 ELECTRICAL ONE-LINE DIAGRAM
NO SCALE

NOTE: COORDINATE EXACT LOCATION OF SERVICE ENTRANCE WITH UTILITY COMPANY, AND OWNER.

GENERAL 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 EXPOSED ENCLOSURES SHALL BE NEMA 4X 316 SS WITH QUICK-RELEASE LUGGAGE LATCHES.
- 4. CONTRACTOR IS RESPONSIBLE FOR NEC REQUIREMENT CLEARANCE AROUND AND ABOVE OF ALL ELECTRICAL EQUIP. (NEC 110.26)
- 5. NON-METALLIC ENCLOSURES SHALL ONLY BE USED ON INDOOR LOCATIONS.
- 6. ALL CIRCUIT HOME-RUNS SHALL BE MINIMUM 2-#12, #12G, 3/4" C. VOLTAGE DROP SHALL COMPLY WITH NEC.
- 7. FLEXIBLE CONDUIT MAY BE USED ONLY FOR FINAL CONNECTION TO EQUIPMENT. (MAXIMUM LENGTH 6').
- 8. ALL PANEL DIRECTORY SHOULD BE TYPED.
- 9. CONTRACTOR SHALL PROVIDE LAMPS FOR ALL LUMINARIES.
- 10. MINIMUM 2-#12, 1-#12 GROUND, 3/4" CONDUIT.
- 11. INSTALLATION OF WORK SHALL COMPLY WITH ALL LOCAL AND STATE CODES AND AUTHORITIES HAVING JURISDICTION.
- 12. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO INSURE A COMPLETE WORKING SYSTEM.
- 13. COORDINATE LOCATION OF ALL PANELS WITH OWNER.
- 14. THESE PLANS ARE SCHEMATIC, VERIFY EQUIPMENT LOCATION AND CONDUIT ROUTING, ETC. PRIOR TO BID.
- 15. CONTRACTOR SHALL PROVIDE PROPER CONDUIT SEAL AS APPLICABLE FOR TERMINATION.

ELECTRICAL NOTES

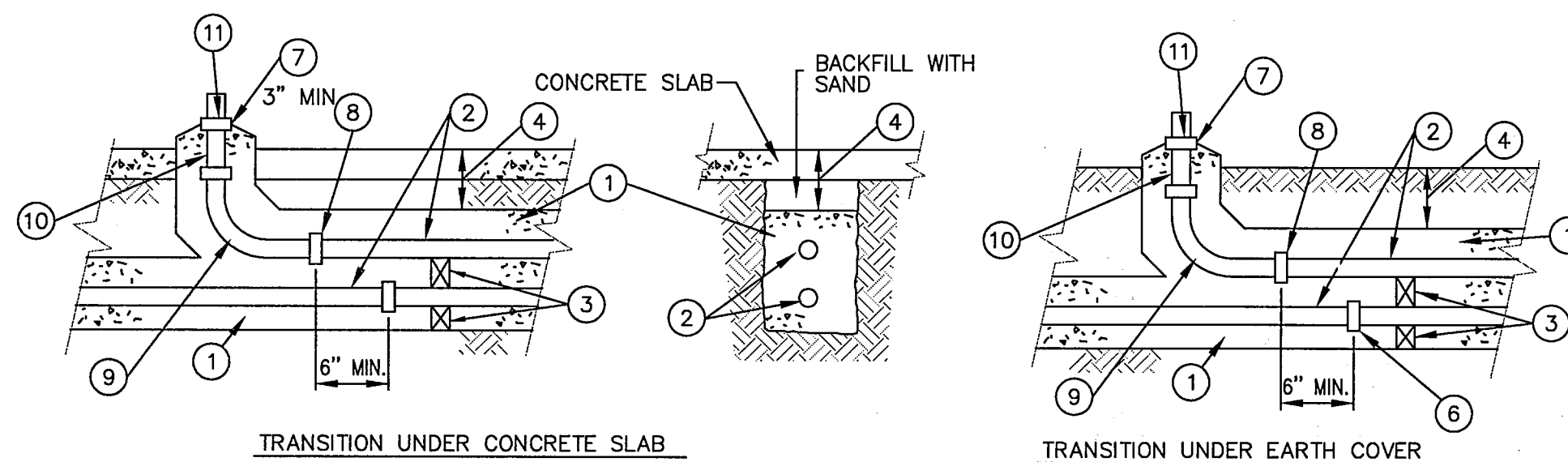
- 1. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE WITH ELECTRIC COMPANY.
- 2. THE CONTRACTOR SHALL FURNISH AND PROVIDE EXPLOSION PROOF, 3 PHASE, 60 HZ. EACH 20 HP MOTORS (MAXIMUM).
- 3. THE CONTRACTOR SHALL PROVIDE METER BASE (AS REQUIRED BY LOCAL UTILITY).
- 4. THE CONTRACTOR SHALL PROVIDE MAIN DISCONNECT (NEMA 4X SS-304).
- 5. THE CONTRACTOR SHALL PROVIDE COPPER WIRING WITH GROUND IN RIGID CONDUIT FROM METER TO SERVICE DISCONNECT TO CONTROL PANEL.
- 6. THE CONTRACTOR SHALL COORDINATE ROUTING IN THE FIELD. ALL ELECTRICAL WORK SHALL CONFORM WITH NEC, NATIONAL, STATE, AND LOCAL CODES.
- 7. THE CONTRACTOR SHALL VERIFY VOLTAGE PRIOR TO PLACING ORDER FOR PUMP MOTORS.
- 8. THE CONTRACTOR SHALL FURNISH AND PROVIDE LIGHTNING ARRESTOR.
- 9. THE CONTRACTOR SHALL FURNISH AND PROVIDE RUN TIME METER AND RUN LIGHT FOR EACH PUMP.
- 10. THE CONTRACTOR SHALL FURNISH AND PROVIDE SEAL FAIL RELAYS WITH PILOT LIGHT, MAIN CIRCUIT BREAKER, AND EMERGENCY RECEPTACLE.
- 11. THE CONTRACTOR SHALL FURNISH AND PROVIDE CONTROL PANEL AND MAIN DISCONNECT SHALL BE SIZED ACCORDING TO NEC. 110 V RECEPTACLE INSIDE CONTROL PANEL.
- 12. THE CONTRACTOR SHALL FURNISH AND PROVIDE TWO EXTRA FUSES OF EVERY SIZE AND TYPE USED, SHALL BE STORED AT THE LOCATION WHERE NEEDED.

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.
(4) WET WELL CONTROLS WITH A BUBBLER SYSTEM REQUIRE DUAL AIR SUPPLY AND DUAL CONTROLS.
(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.
- L0;(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.

NOTES:

- 1. CLASS 'C' CONCRETE.
- 2. SEE DESIGN DRAWINGS FOR NUMBER AND SIZE OF CONDUITS. 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 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 S.S. CONDUIT BENDS FOR PVC CONDUITS 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.



2 UNDERGROUND CONDUIT INSTALLATION DETAIL
NO SCALE

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

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-make 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 handled 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 ampere 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 a 40 watt bulb 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.

24 VAC Regulator System:
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. The system shall

Panel Racks:
Posts supporting racks shall be 3" minimum rigid conduit capped and bolted directly to channel framework supporting the panels.

Panel shall have a structure using 1/4" minimum aluminum plate to provide a solid back plate behind panels and overhead protection 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 hatch's 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 floats for pump operation.

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 1/16" 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.

Manufacturer: The manufacturer shall be a UL listed shop for industrial control systems and shall provide evidence of such on request from the engineer or using authority.

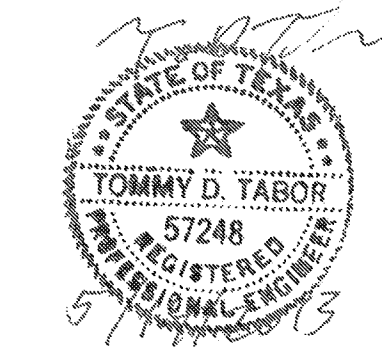
PERKINS ENGINEERING CONSULTANTS, INC.
T. TABOR CONSULTING, PLLC (5279)
1301 DEBBIE LANE, SUITE 102-152
MANSFIELD, TEXAS 76063
972-896-6969

TTC-PLLC

DEVELOPMENT PLANS FOR
BREEZY HILL PHASE I
ROCKWALL, TEXAS

GENERAL NOTES & SERVICE ENTRANCE ONE-LINE

DRAWN BY MLH / KF	DESIGNED BY TDT	CHECKED BY TDT	SHEET NO. LSE - 3
JOB NUMBER COR 12-001	DATE MAY 2013	SCALE NOTED	



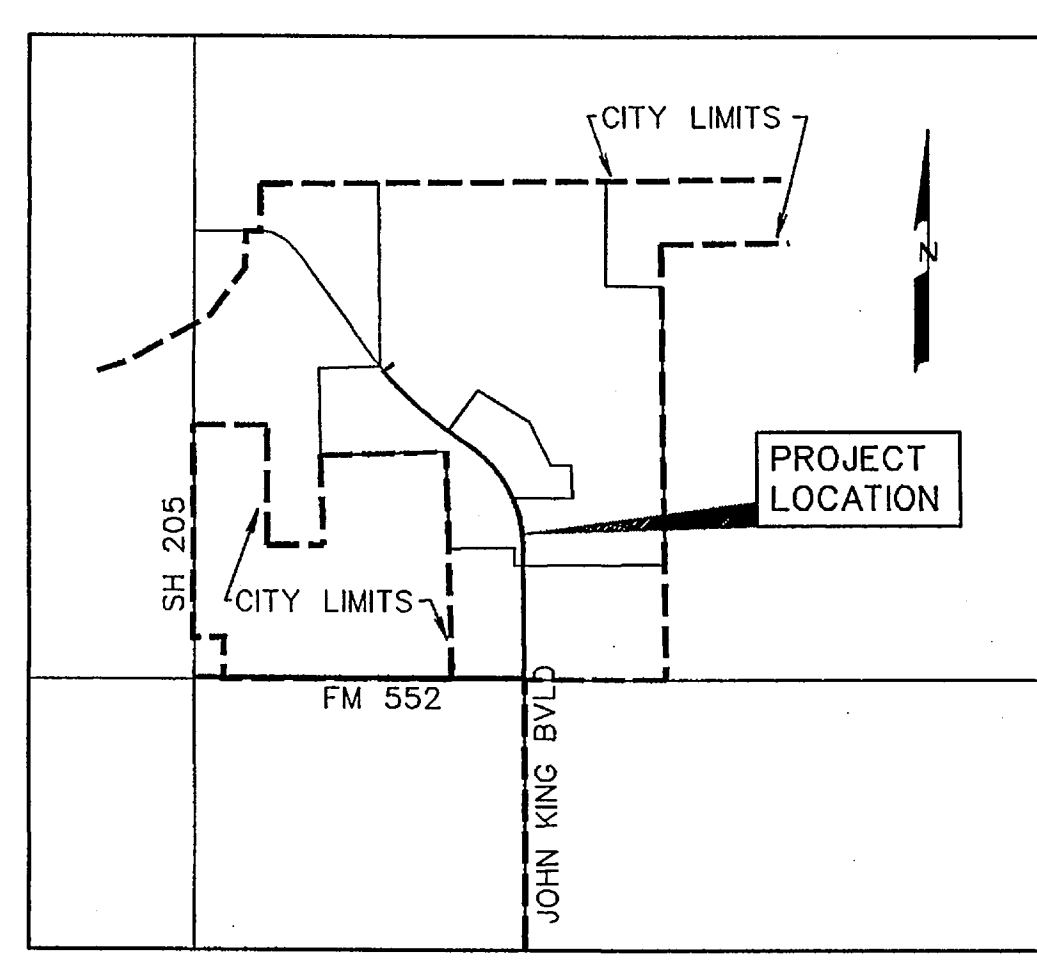
AS-BUILT APRIL 2014
INFORMATION PROVIDED BY CONTRACTORS
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Y:\ACTIVE\PROJECTS\ACTIVE-DATA\CURRENT-PROJECTS\Perkins-Rockwall-LS-Breezy-Hill-2012\CAD\Breezy-Hill-Lit-Station.dwg May 15, 2013 10:14am User: TommyT

DEVELOPMENT PLANS FOR BREEZY HILL FORCE MAIN CITY OF ROCKWALL, TEXAS

INDEX

1	FORCE MAIN PLAN
2	FORCE MAIN PLAN
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6	FORCE MAIN PROFILE
7	FORCE MAIN PROFILE
8	FORCE MAIN PROFILE
9	FORCE MAIN PROFILE
1 OF 1	LIFT STATION DRAINAGE BASIN MAP
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	DETAILS & TECHNICAL DATA
LSE-2	ELECTRICAL ON-LINE & DETAILS
LSE-3	GENERAL NOTES & SERVICE ENTRANCE ONE-LINE



VICINITY MAP
NOT TO SCALE

PREPARED FOR
BH PHASE 1 SF, LTD.
8214 WESTCHESTER DRIVE, SUITE 710 DALLAS, TEXAS 75225

CORWIN ENGINEERING, INC. — CONSULTING ENGINEERS

200 W. BELMONT, SUITE E

TBPE FIRM #5951

ALLEN, TEXAS 75013

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

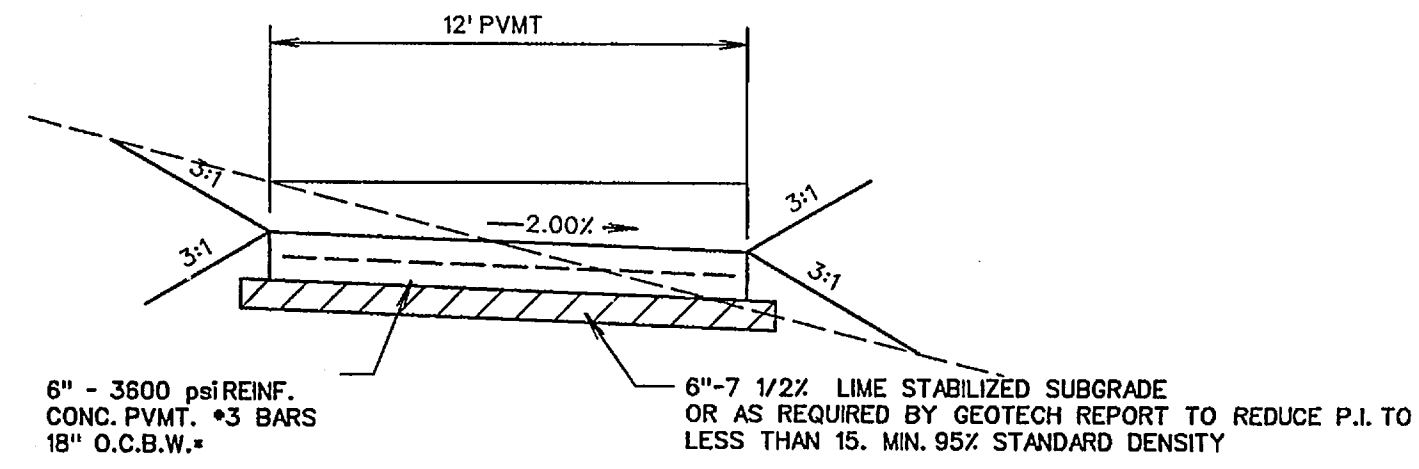
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NO.	PER CITY COMMENTS	REVISIONS	BY	DATE
2	PER CITY COMMENTS			5/31/13
1	PER CITY COMMENTS			5/22/13

The seal appearing on
this document was
authorized by
Warren L. Corwin,
P.E. 57875, on
June 21, 2013
Warren L. Corwin
6/21/2013

CURVE TABLE

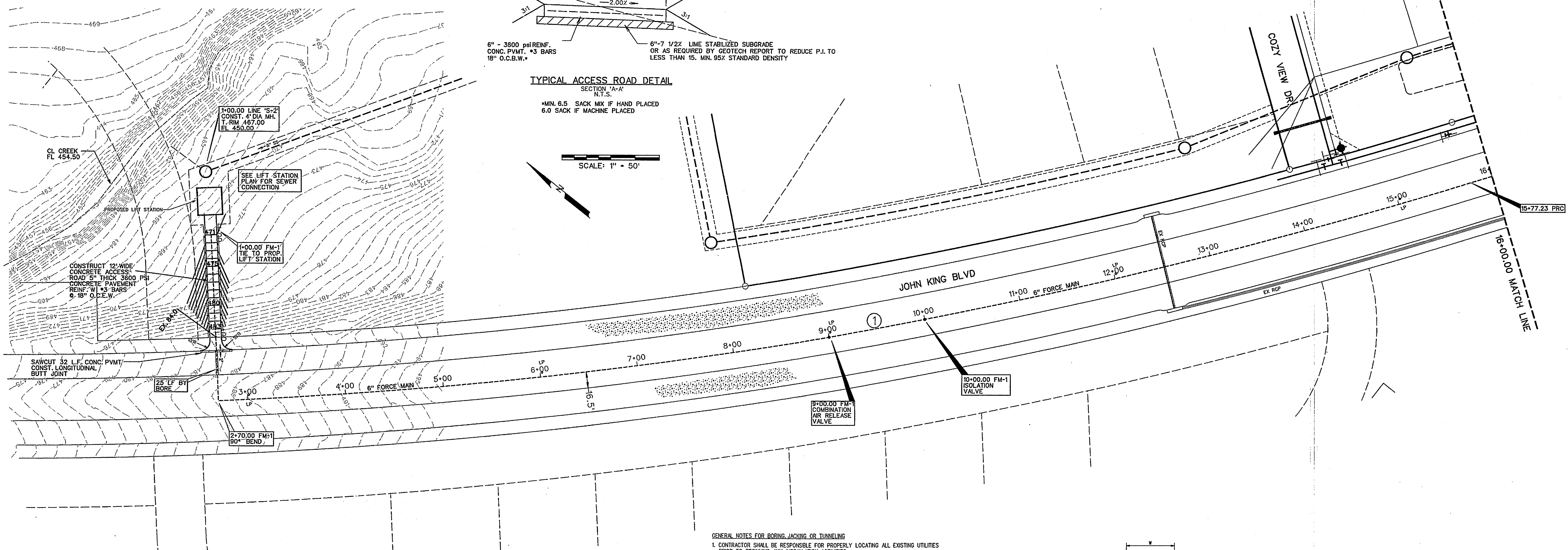
CURVE NO.	DELTA	RADIUS	LENGTH	TANGENT
1.	14°57'53"	5005.00'	1307.23'	657.36'



TYPICAL ACCESS ROAD DETAIL

SECTION 'A-A'
N.T.S.
MIN. 6.5 SACK MIX IF HAND PLACED
6.0 SACK IF MACHINE PLACED

SCALE: 1" = 50'



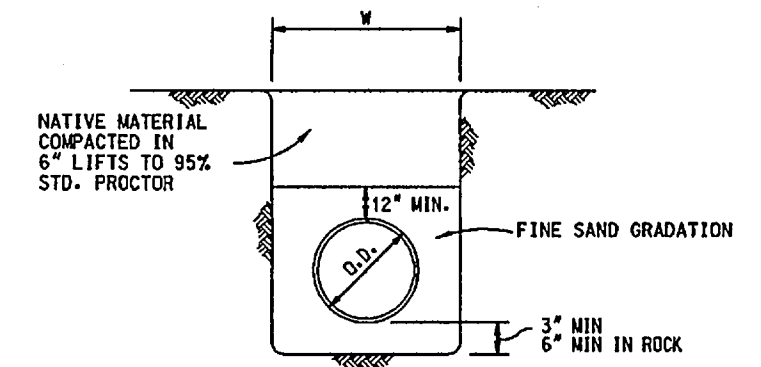
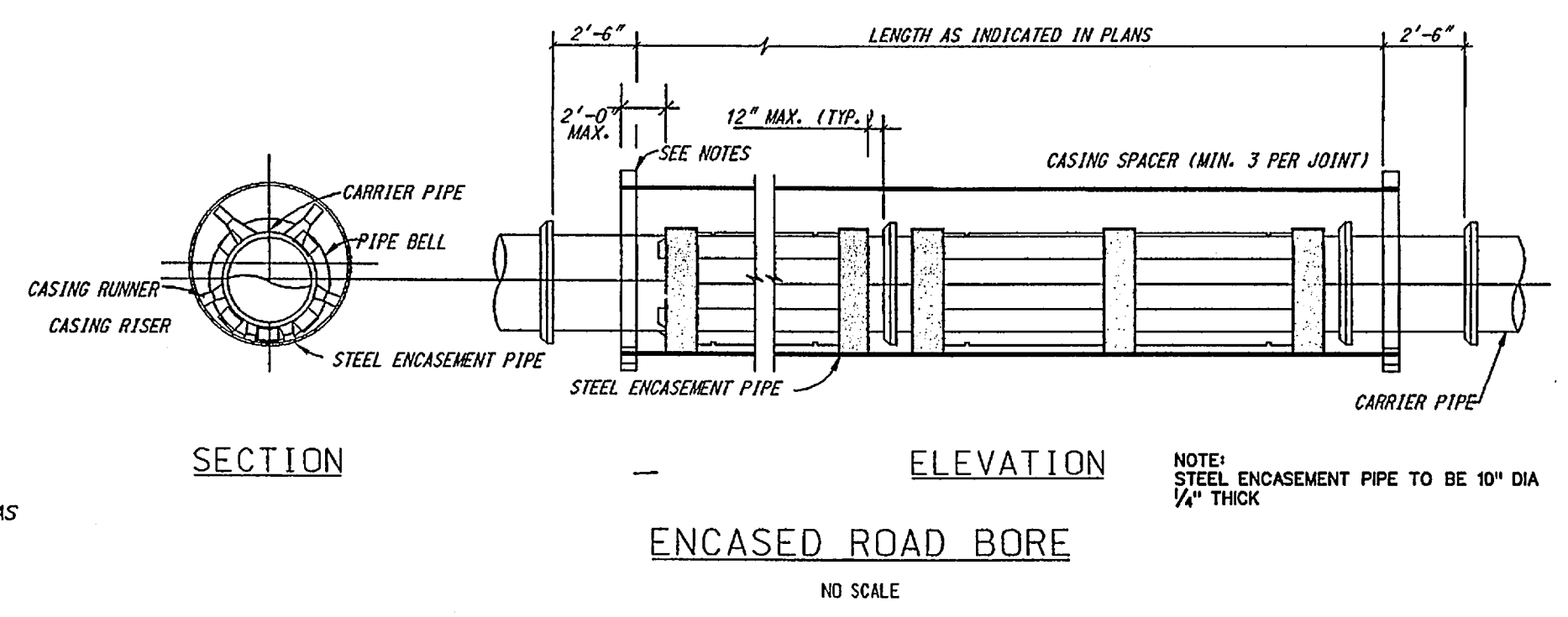
NOTES FOR CONSTRUCTION WITH THE NORTH TEXAS MUNICIPAL WATER DISTRICT EASEMENT

- 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. Unless otherwise shown or required a minimum of one-foot clearance shall be provided for all utilities crossing the NTMWD pipelines.
- 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.

GENERAL NOTES FOR BORING JACKING OR TUNNELING
 1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY LOCATING ALL EXISTING UTILITIES PRIOR TO BEGINNING ANY INSTALLATION ACTIVITIES.
 2. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH REPAIR OR REPLACEMENT OF ANY PAVEMENT AND UNDERGROUND UTILITIES DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS.
 3. DRY BORE SHALL BE UTILIZED UNLESS OTHER METHODS SPECIFICALLY ARE APPROVED IN WRITING BY THE CITY.

NOTES:

- 1) CONTRACTOR SHALL PROVIDE SUPPORT UNDER CARRIER PIPE TO HAVE MIN. 1.5" CLEARANCE BETWEEN PIPE BELL AND ENCASEMENT PIPE.
- 2) ENDS OF ENCASEMENT PIPE SHALL BE PLUGGED WITH BRICK AND MORTAR FOR ROADWAY CROSSINGS.
- 3) CONTRACTOR SHALL FURNISH & INSTALL A MINIMUM OF 3 CASING SPACERS PER JOINT OF PIPE. CASING SPACERS SHALL BE INSTALLED ACCORDING TO MANUFACTURERS RECOMMENDATIONS. CASING SPACERS SHALL BE AS MANUFACTURED BY P.S.I. OR APPROVED EQUAL.

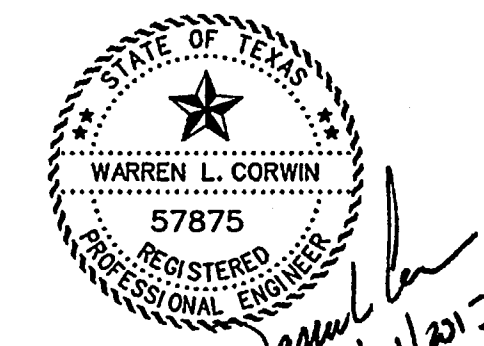


CLASS B-3 EMBEDMENT
P.V.C. PIPE ONLY

- LEGEND
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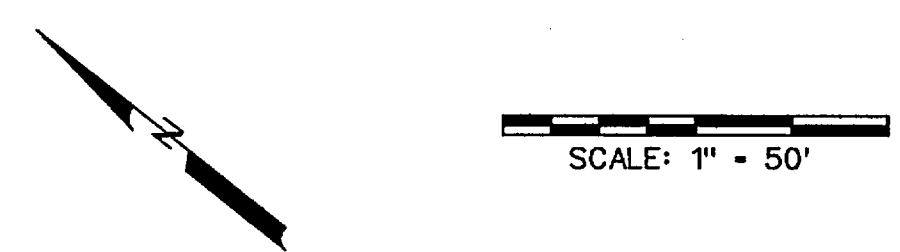
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INSTALL GREEN SANITARY SEWER MARKER POSTS APPROX. EVERY 250 FEET ABOVE FORCE MAIN.
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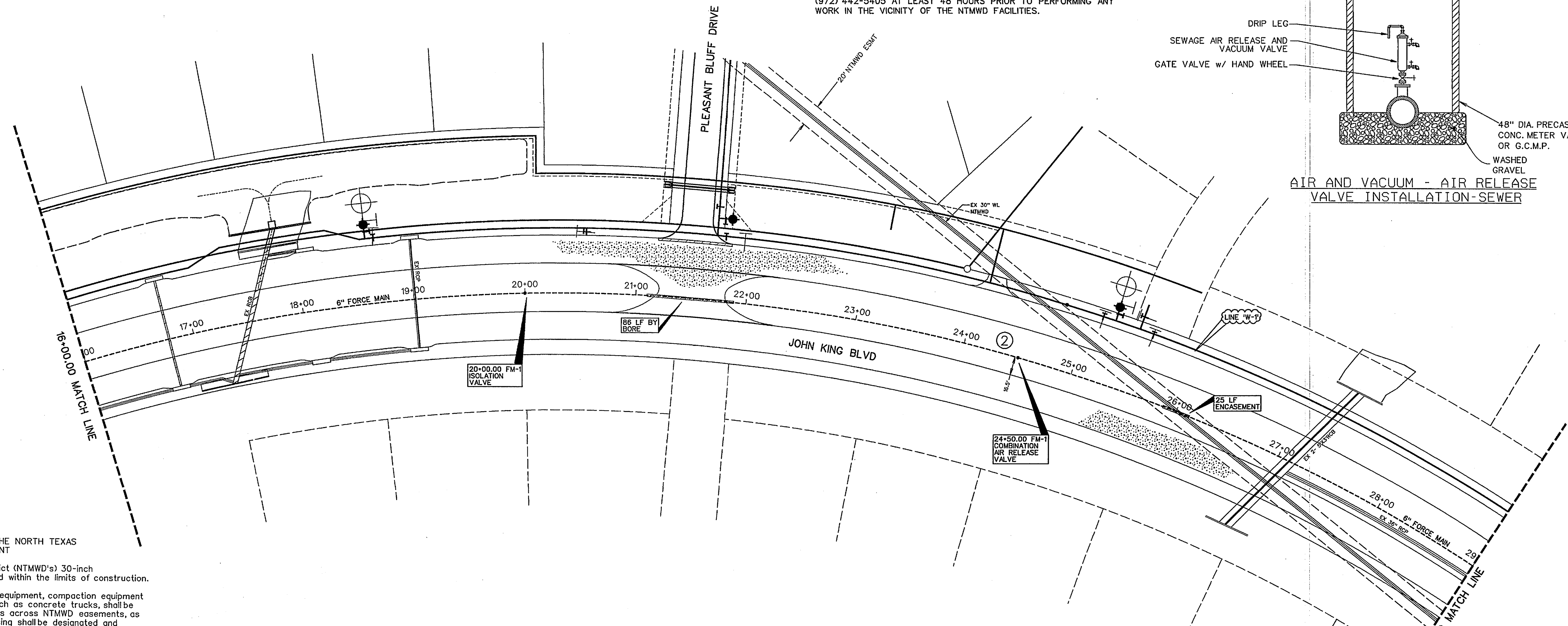
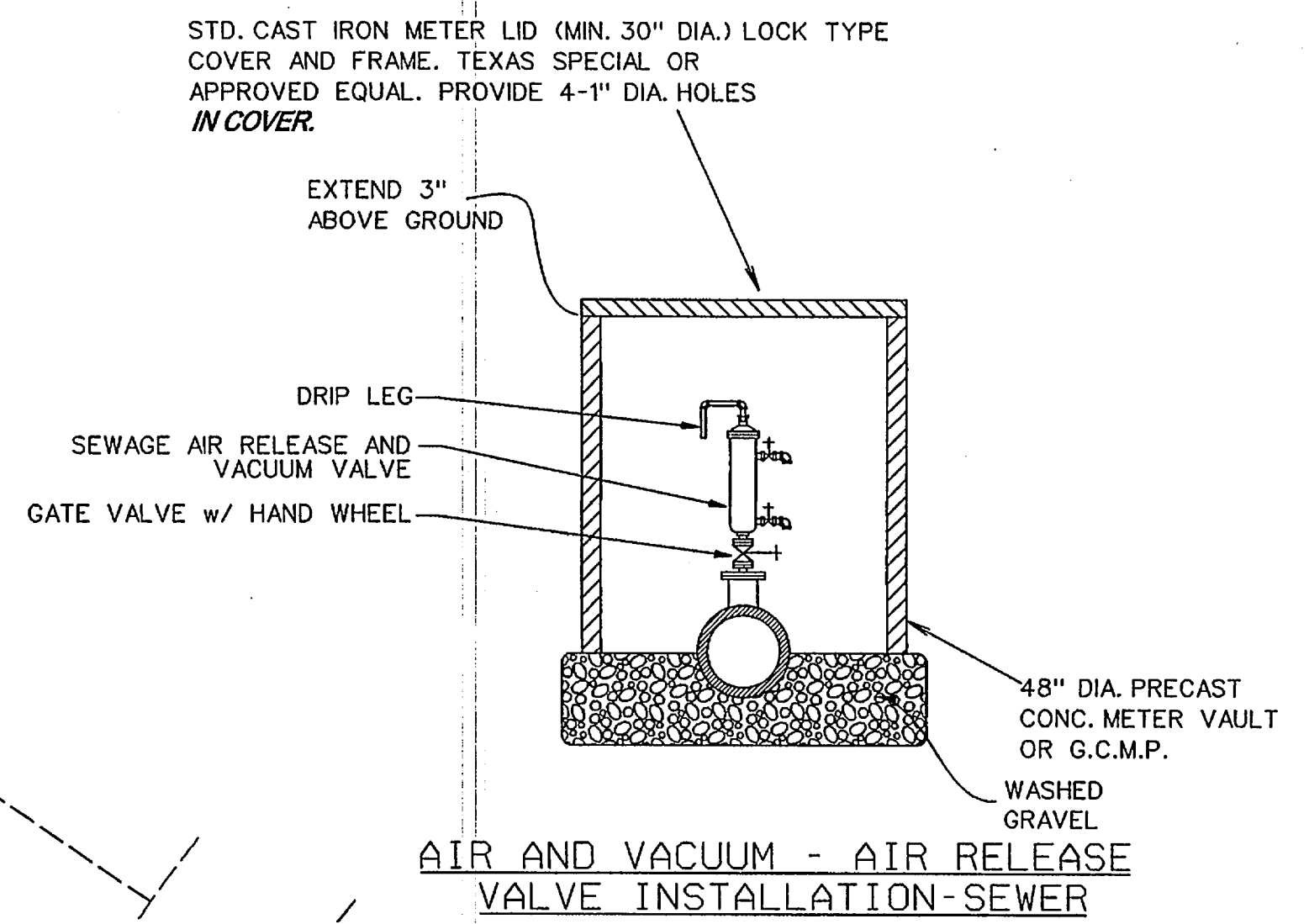
The seal appearing on this document was authorized by Warren L. Corwin, P.E. 57875, on June 21, 2013

AS-BUILT APRIL 2014
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 FORCE MAIN ROCKWALL, TEXAS</p>			
<p>FORCE MAIN PLAN</p>			
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE	1 OF 9
12003F	JANUARY 2013	1"=50'	



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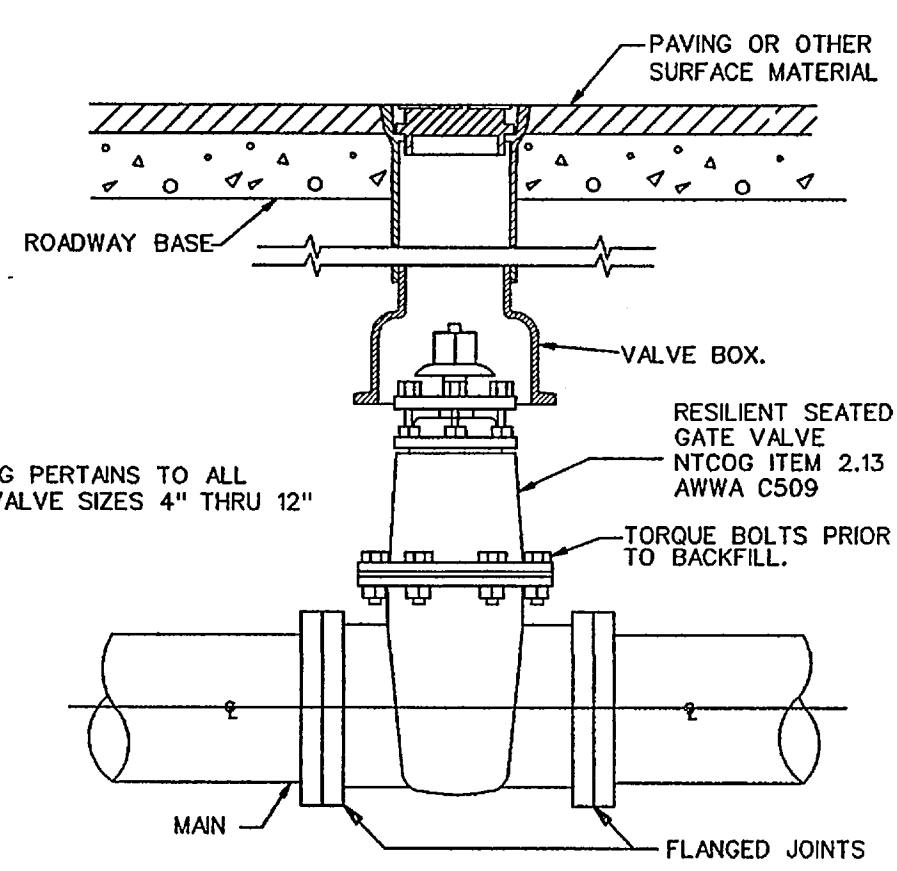
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CURVE TABLE

CURVE NO.	DELTA	RADIUS	LENGTH	TANGENT
2.	56°17'37"	1495.00'	1468.85'	799.83'

- NOTES:**
- IN UNPAVED AREAS, INSTALL 2' x 2' x 4" CONCRETE VALVE PAD FLUSH WITH THE TOP OF VALVE BOX.
 - IF CONNECTING TO A METALLIC PIPE, FLANGE JOINT SHALL BE INSULATED. CONTRACTOR SHALL FURNISH AND INSTALL "INSULKET" FLANGE GASKETS, OR APPROVED EQUIVALENT, INSULATING SLEEVES AND TWO PLASTIC WASHERS FOR EACH BOLT AT EACH FLANGE AND VALVE CONNECTION.

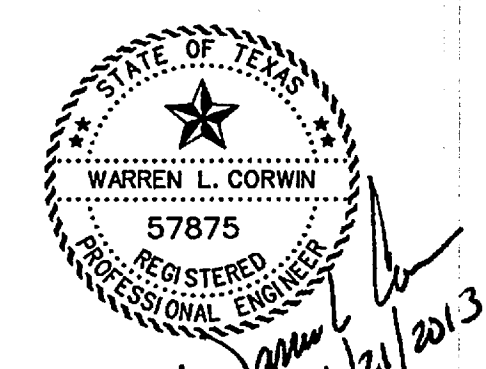


ISOLATION GATE VALVE DETAIL

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DETECTOR TAPE SHALL BE REQUIRED ALONG FORCE MAIN. SEE TCEQ 217.66

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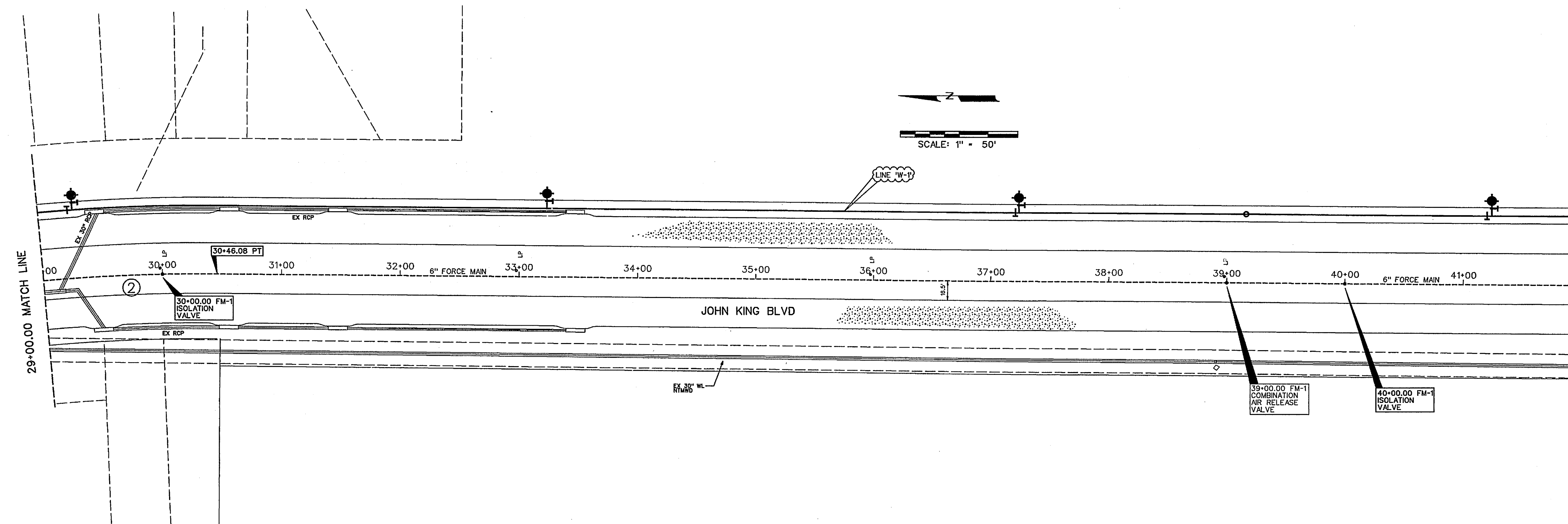


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AS-BUILT APRIL 2014
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DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE:	2 OF 9
12003F	JANUARY 2013	1"=50'	

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2.	56°17'37"	1495.00'	1468.85'
			TANGENT 799.83'

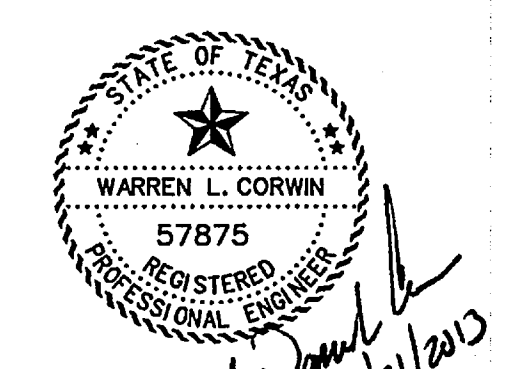


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- NOTES:**
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 2. CONTRACTOR TO REPLACE ANY PAVEMENT, SIGNS, FENCES ETC. DAMAGED IN CONSTRUCTION AT OWN EXPENSE.
 3. CONTRACTOR TO USE MANUFACTURED BENDS AND PULL PIPE TO REQUIRED ALIGNMENT.
 4. CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL AND SIGNAGE DURING ALL PHASES OF CONSTRUCTION.



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JOB NUMBER 12003F	DATE JANUARY 2013	SCALE: 1"=50'	3 OF 9

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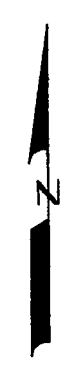
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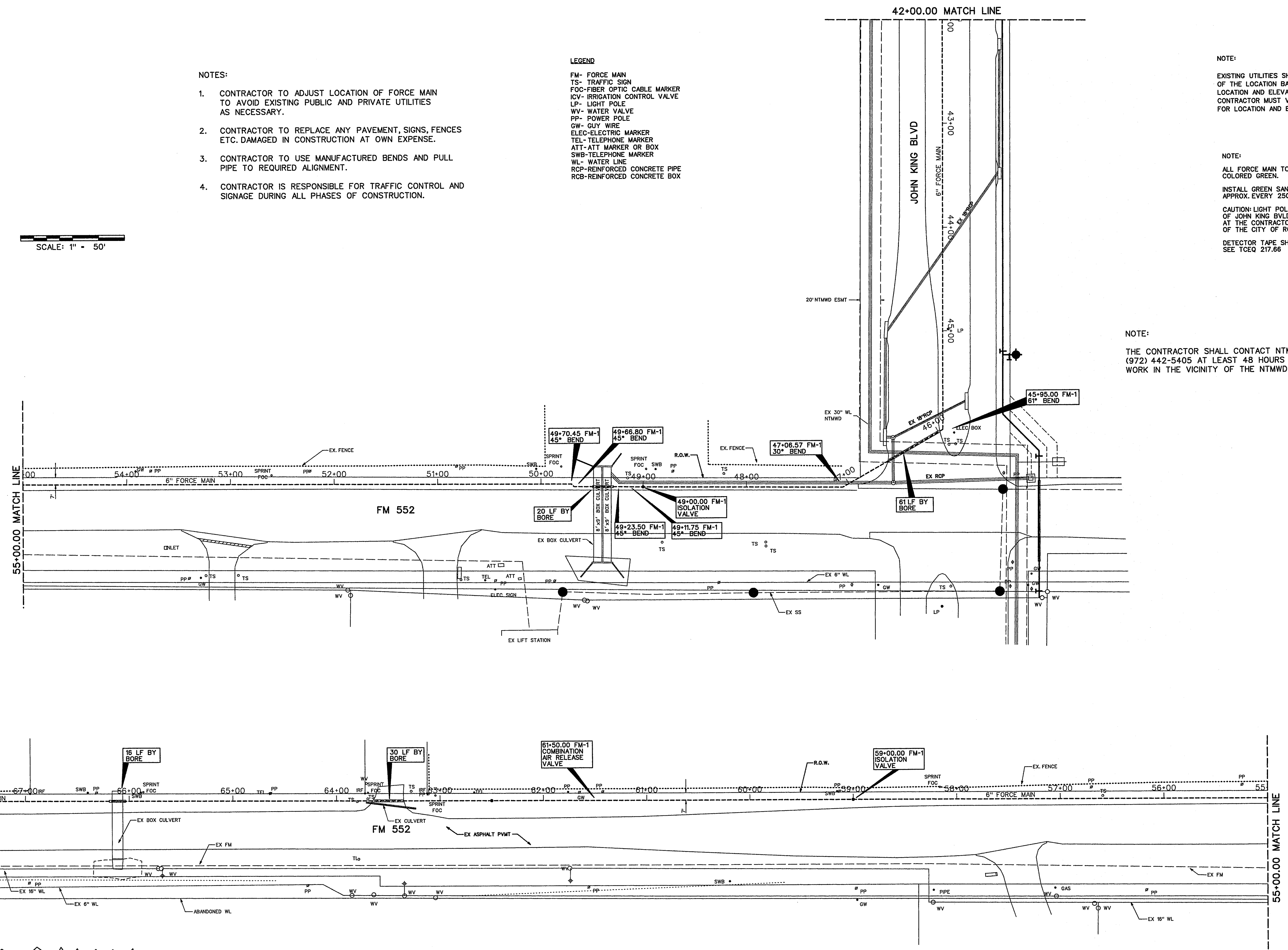
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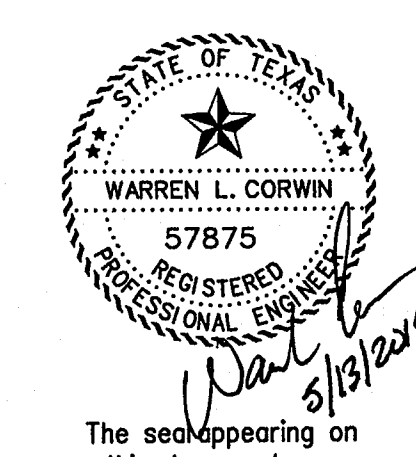


SCALE: 1" = 50'



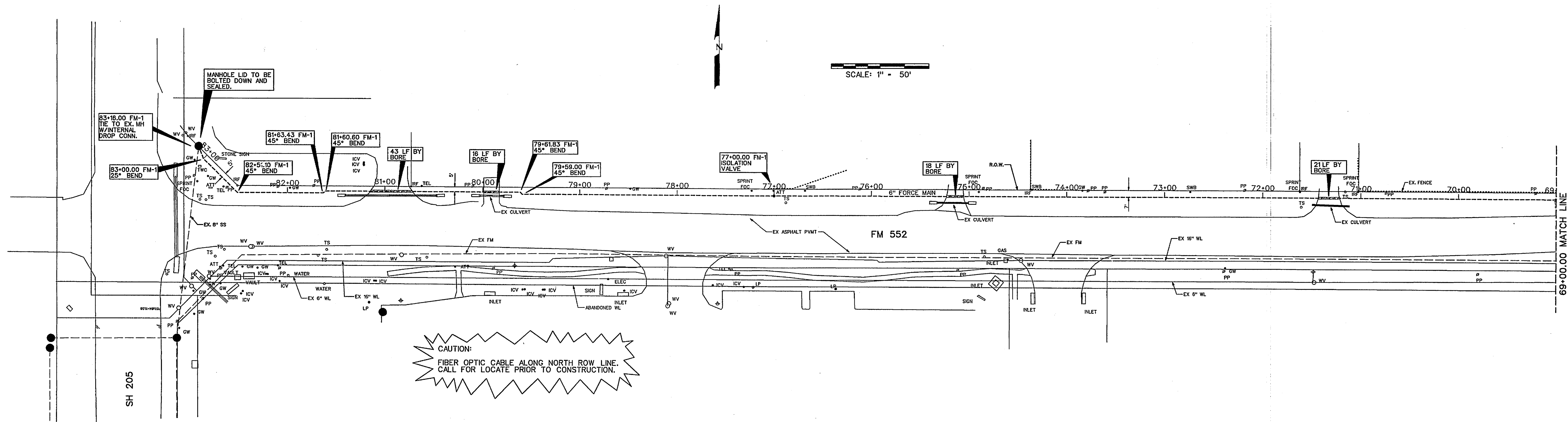
CAUTION:
 FIBER OPTIC CABLE ALONG NORTH ROW LINE.
 CALL FOR LOCATE PRIOR TO CONSTRUCTION.

AS-BUILT APRIL 2014
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 BY CONTRACTORS
 (NOT FIELD VERIFIED)



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<p>CORWIN ENGINEERING, INC. 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972)396-1200 TBPE FIRM #5951</p>			
DEVELOPMENT PLANS FOR BREEZY HILL FORCE MAIN ROCKWALL, TEXAS			
FORCE MAIN PLAN			
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 12003F	DATE JANUARY 2013	SCALE: 1"=50'	4 OF 9



SCALE: 1" = 50'

CAUTION:
FIBER OPTIC CABLE ALONG NORTH ROW LINE.
CALL FOR LOCATE PRIOR TO CONSTRUCTION.

- LEGEND**
- FM- FORCE MAIN
 - TS- TRAFFIC SIGN
 - FOC-FIBER OPTIC CABLE MARKER
 - ICV- IRRIGATION CONTROL VALVE
 - LP- LIGHT POLE
 - WV- WATER VALVE
 - PP- POWER POLE
 - GW- GUY WIRE
 - ZLEO-ELECTRIC MARKER
 - TEL- TELEPHONE MARKER
 - ATT- ATT MARKER OR BOX
 - SWB- TELEPHONE MARKER
 - WL- WATER LINE
 - RCP- REINFORCED CONCRETE PIPE
 - RCB- REINFORCED CONCRETE BOX

NOTE:

EXISTING UTILITIES SHOWN ARE A GRAPHICAL REPRESENTATION OF THE LOCATION BASED ON AS-BUILT DRAWINGS. ACTUAL LOCATION AND ELEVATION MAY BE DIFFERENT. CONTRACTOR MUST VERIFY ALL EXISTING UTILITIES FOR LOCATION AND ELEVATION PRIOR TO CONSTRUCTION.

NOTE:

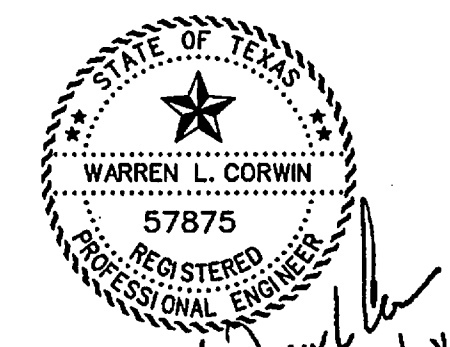
ALL FORCE MAIN TO BE AWWA C-900 PIPE DR14, COLORED GREEN.

INSTALL GREEN SANITARY SEWER MARKER POSTS APPROX. EVERY 250 FEET ABOVE FORCE MAIN.

CAUTION: LIGHT POLE CONDUIT IN MEDIAN OF JOHN KING BLVD. ANY DAMAGE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE CITY OF ROCKWALL.

DETECTOR TAPE SHALL BE REQUIRED ALONG FORCE MAIN. SEE TCEQ 217.66

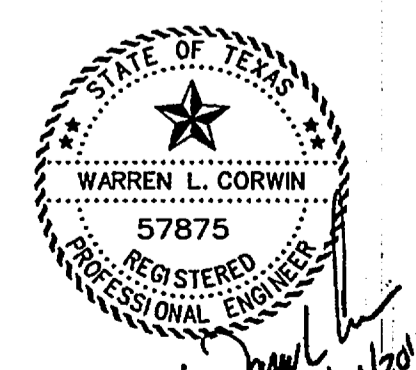
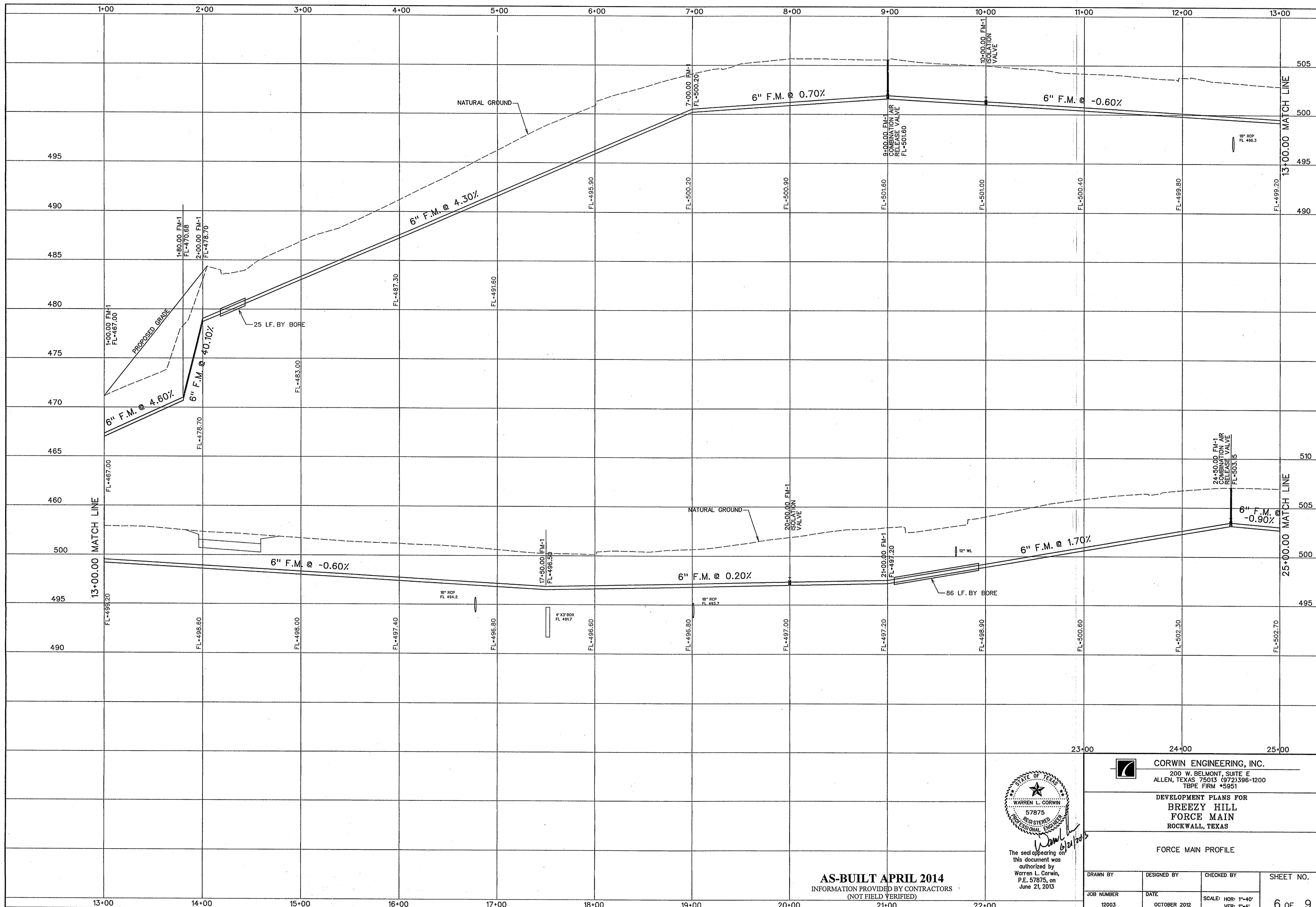
- NOTES:**
1. CONTRACTOR TO ADJUST LOCATION OF FORCE MAIN TO AVOID EXISTING PUBLIC AND PRIVATE UTILITIES AS NECESSARY.
 2. CONTRACTOR TO REPLACE ANY PAVEMENT, SIGNS, FENCES ETC. DAMAGED IN CONSTRUCTION AT OWN EXPENSE.
 3. CONTRACTOR TO USE MANUFACTURED BENDS AND PULL PIPE TO REQUIRED ALIGNMENT.
 4. CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL AND SIGNAGE DURING ALL PHASES OF CONSTRUCTION.



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AS-BUILT APRIL 2014
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 FORCE MAIN ROCKWALL, TEXAS</p>			
<p>FORCE MAIN PLAN</p>			
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 12003F	DATE JANUARY 2013	SCALE: 1"=50'	5 OF 9



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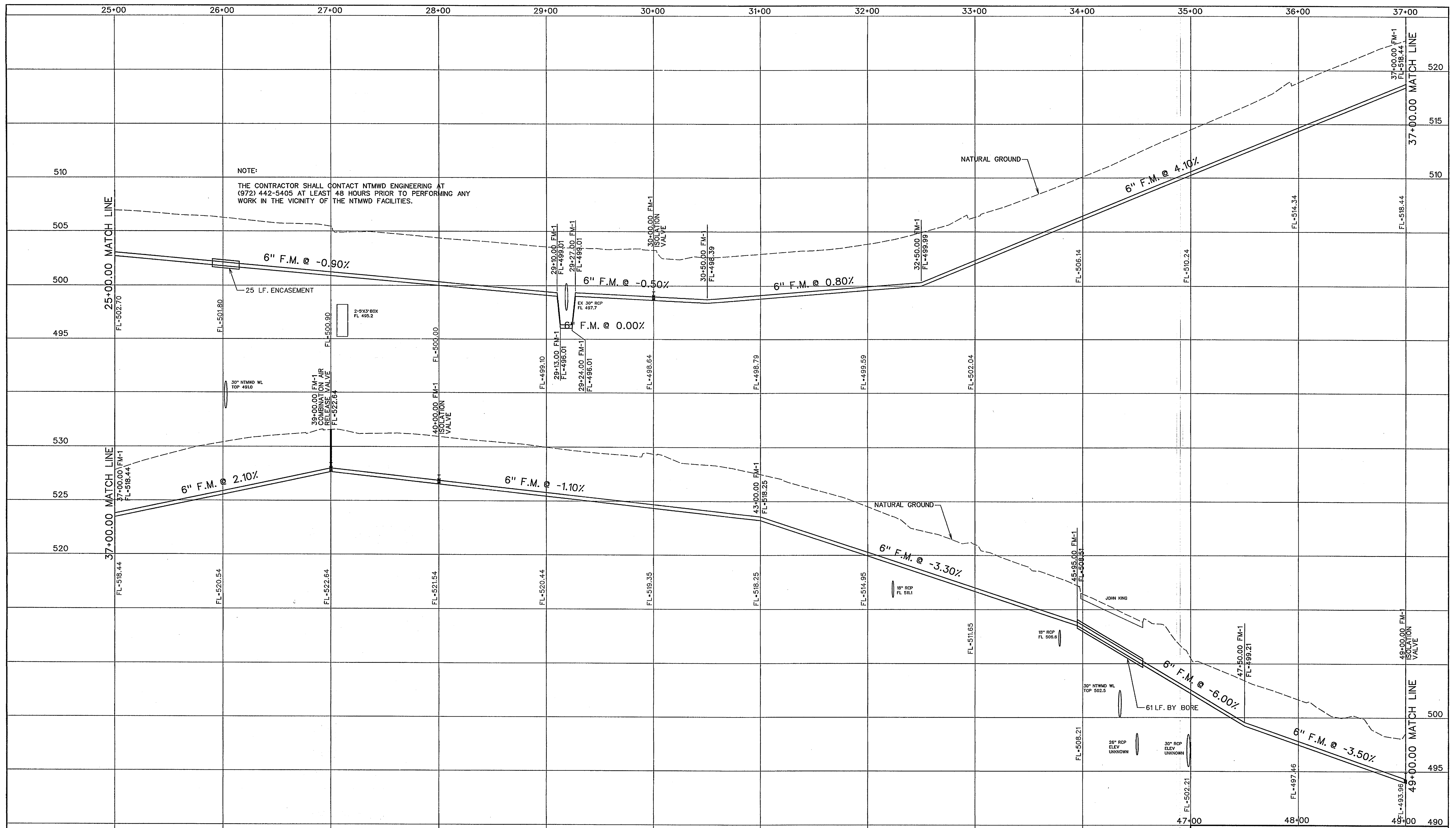
AS-BUILT APRIL 2014
 INFORMATION PROVIDED BY CONTRACTORS
 (NOT FIELD VERIFIED)

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

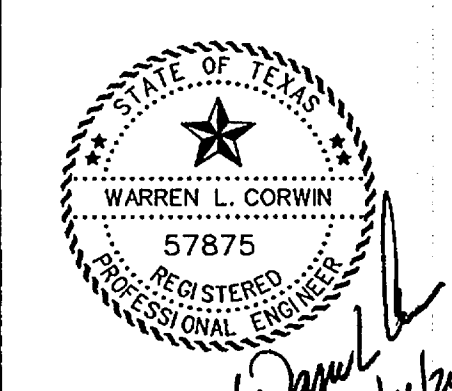
DEVELOPMENT PLANS FOR
**BREEZY HILL
 FORCE MAIN**
 ROCKWALL, TEXAS

FORCE MAIN PROFILE

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	6 OF 9
12003	OCTOBER 2012		



AS-BUILT APRIL 2014
 INFORMATION PROVIDED BY CONTRACTORS
 (NOT FIELD VERIFIED)



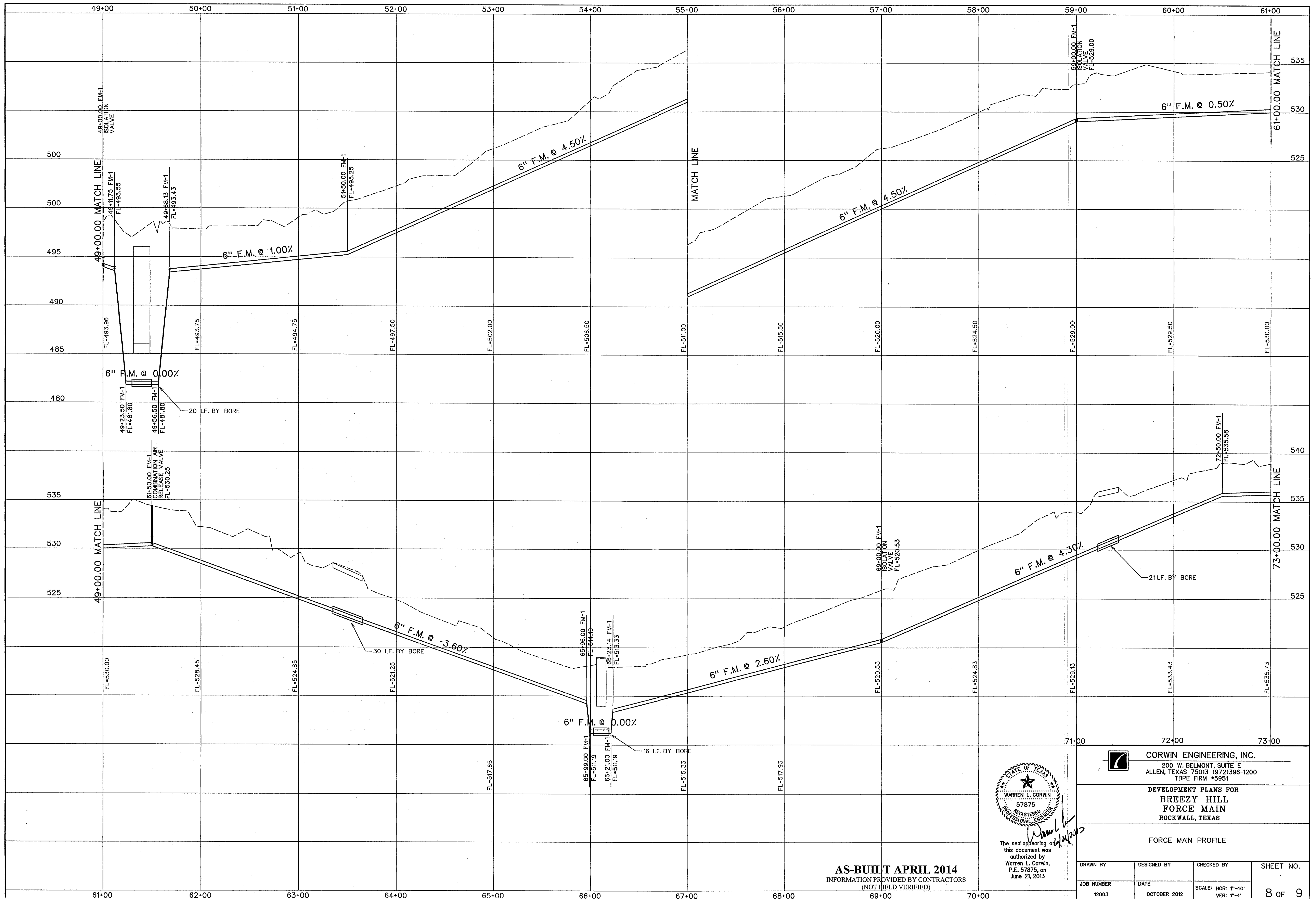
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CORWIN ENGINEERING, INC.
 200 W. BELMONT, SUITE E
 ALLEN, TEXAS 75013 (972) 396-1200
 TBP FIRM #5951

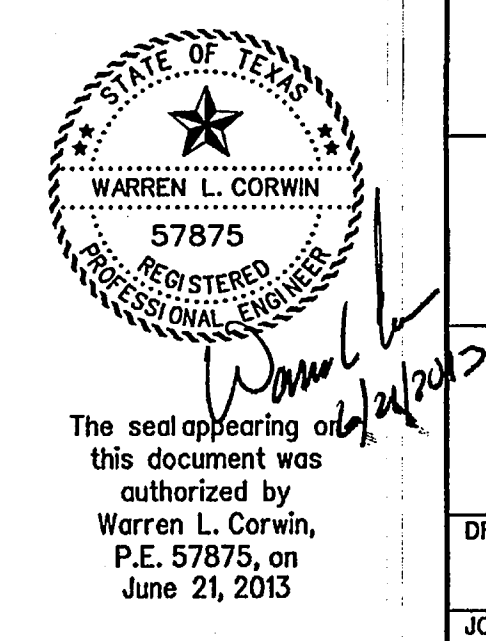
DEVELOPMENT PLANS FOR
**BREEZY HILL
 FORCE MAIN**
 ROCKWALL, TEXAS

FORCE MAIN PROFILE

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	7 OF 9
12003	OCTOBER 2012		



AS-BUILT APRIL 2014
 INFORMATION PROVIDED BY CONTRACTORS
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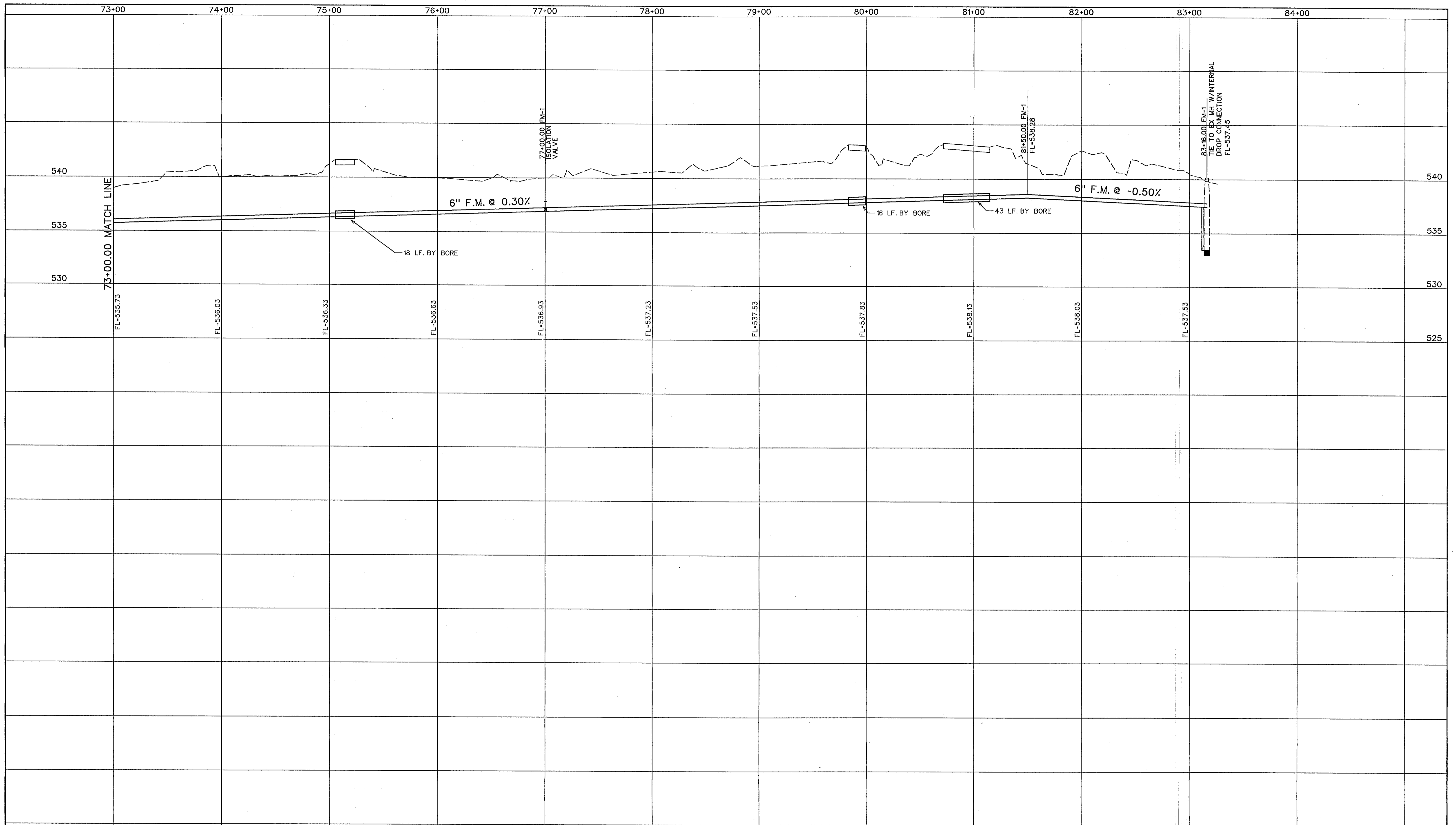


CORWIN ENGINEERING, INC.
 200 W. BELMONT, SUITE E
 ALLEN, TEXAS 75013 (972)396-1200
 TBPE FIRM #5951

**DEVELOPMENT PLANS FOR
 BREEZY HILL
 FORCE MAIN
 ROCKWALL, TEXAS**

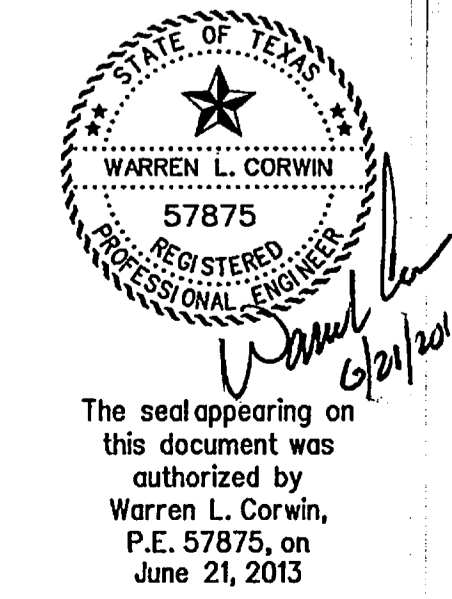
FORCE MAIN PROFILE

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40'	8 OF 9
12003	OCTOBER 2012	VER: 1"=4"	



73+00	74+00	75+00	76+00	77+00	78+00	79+00	80+00	81+00	82+00	83+00	84+00
FL-536.73	FL-536.03	FL-536.33	FL-536.63	FL-536.93	FL-537.23	FL-537.53	FL-537.83	FL-538.13	FL-538.03	FL-537.53	

AS-BUILT APRIL 2014
 INFORMATION PROVIDED BY CONTRACTORS
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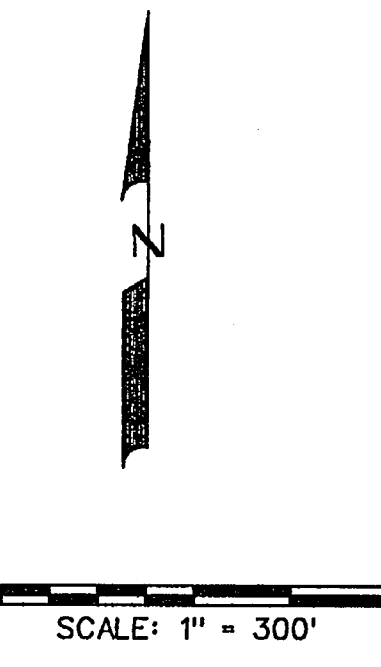
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CORWIN ENGINEERING, INC.
 200 W. BELMONT, SUITE E
 ALLEN, TEXAS 75013 (972)396-1200
 TBPE FIRM #5951


DEVELOPMENT PLANS FOR
BREEZY HILL
FORCE MAIN
 ROCKWALL, TEXAS

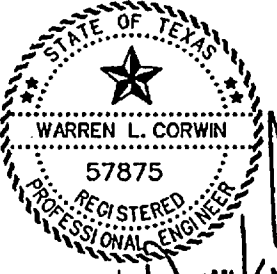
FORCE MAIN PROFILE

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	9 OF 9
12003	OCTOBER 2012		



DRAINAGE AREA BASIN		
PHASE I	PHASE II	OFFSITE
155 LOTS	503 LOTS	
97 AC.	244 AC.	128 AC.

 CORWIN ENGINEERING, INC. 200 W. BELMONT, SUITE E ALLEN, TEXAS 75013 (972)396-1200 TBPE FIRM #5951			
DEVELOPMENT PLANS FOR BREEZY HILL PHASE I ROCKWALL, TEXAS			
LIFT STATION DRAINAGE BASIN MAP			
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE	
12003	APRIL 2013		1 OF 1

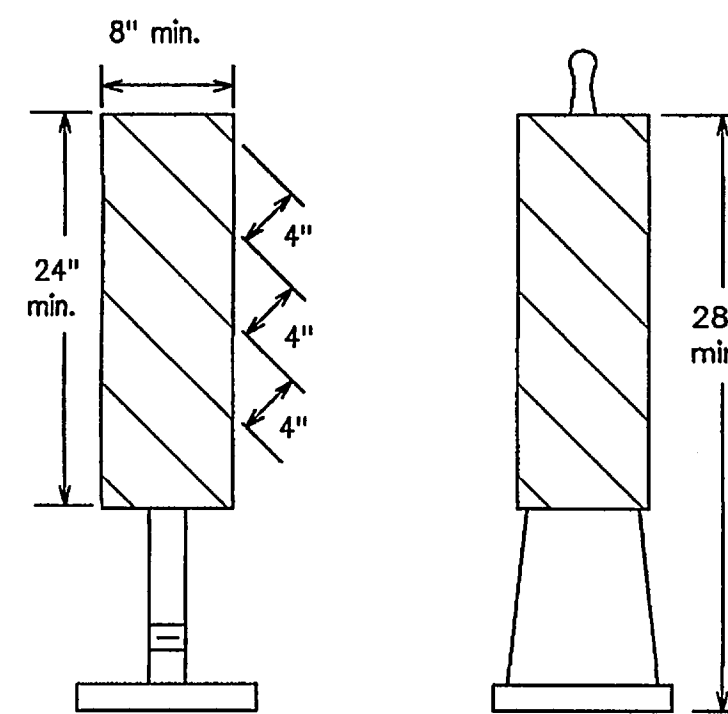
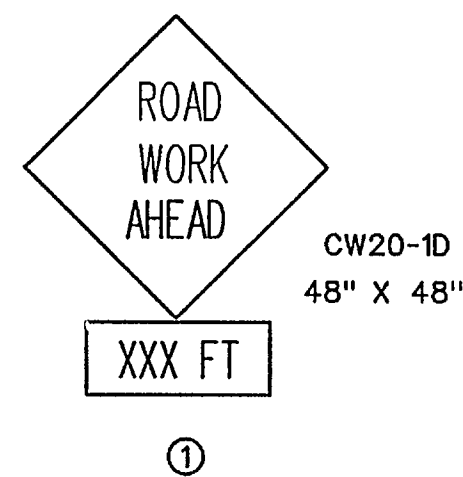
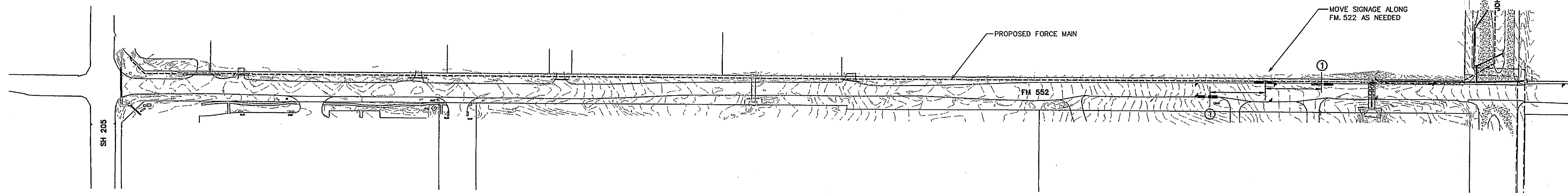

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AS-BUILT APRIL 2014
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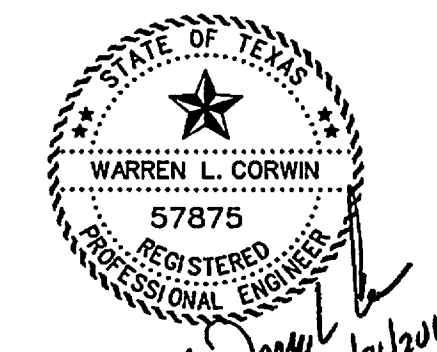


SCALE: 1" = 150'

NOTE:
FORCE MAIN INSTALLATION IN THE NORTH ROW OF
FM 552. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL
PER STATE DETAIL TPC(1)-D-12 IN THE AREA THAT CONSTRUCTION
IS ONGOING.




----- PORTABLE CHANNELIZING DEVICE
@ 15' SPACING



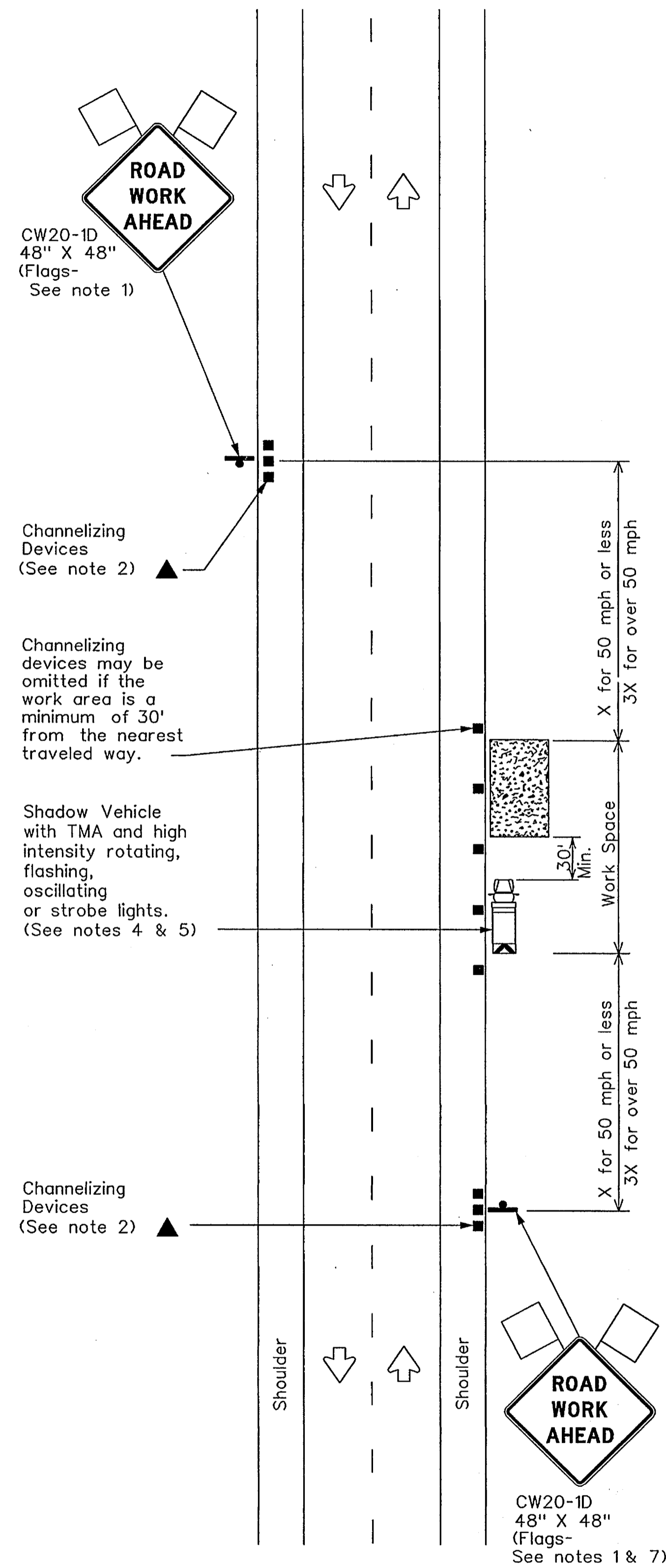
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June 21, 2013

AS-BUILT APRIL 2014
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 I ROCKWALL, TEXAS			
FM 552 TRAFFIC CONTROL PLAN			
DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER 12003	DATE APRIL 2013	SCALE: 1"=150'	1 OF 2

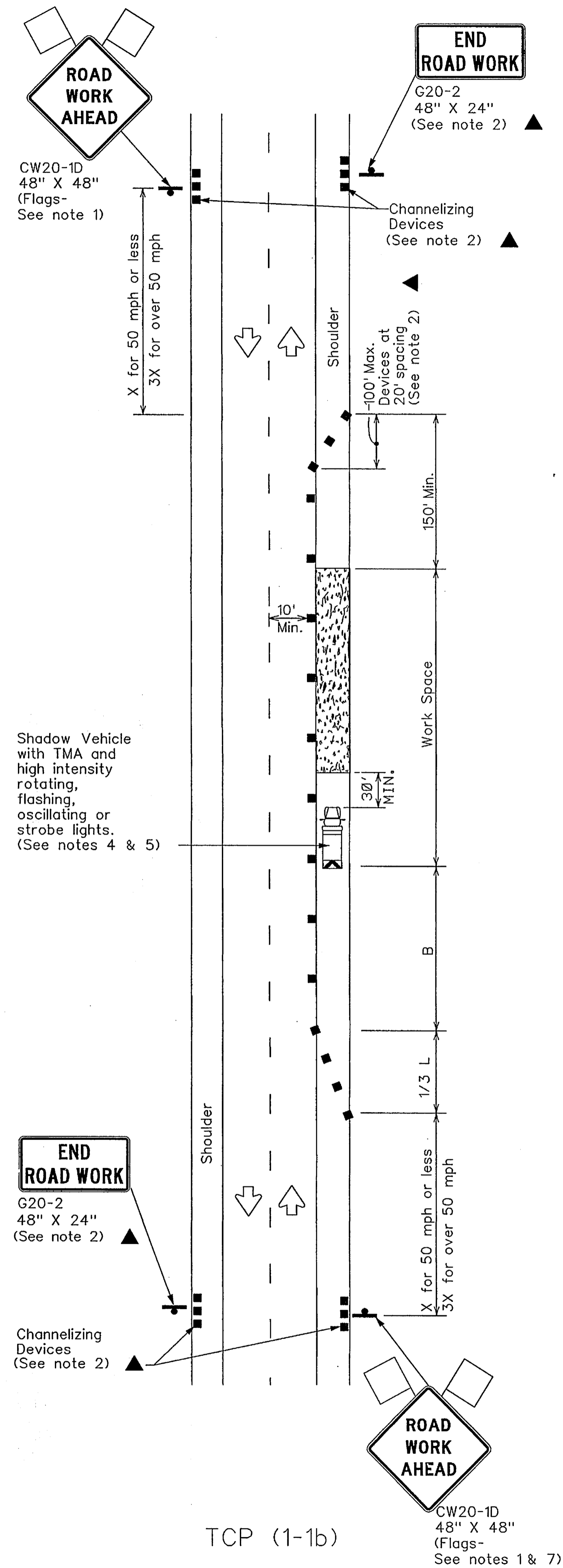
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:



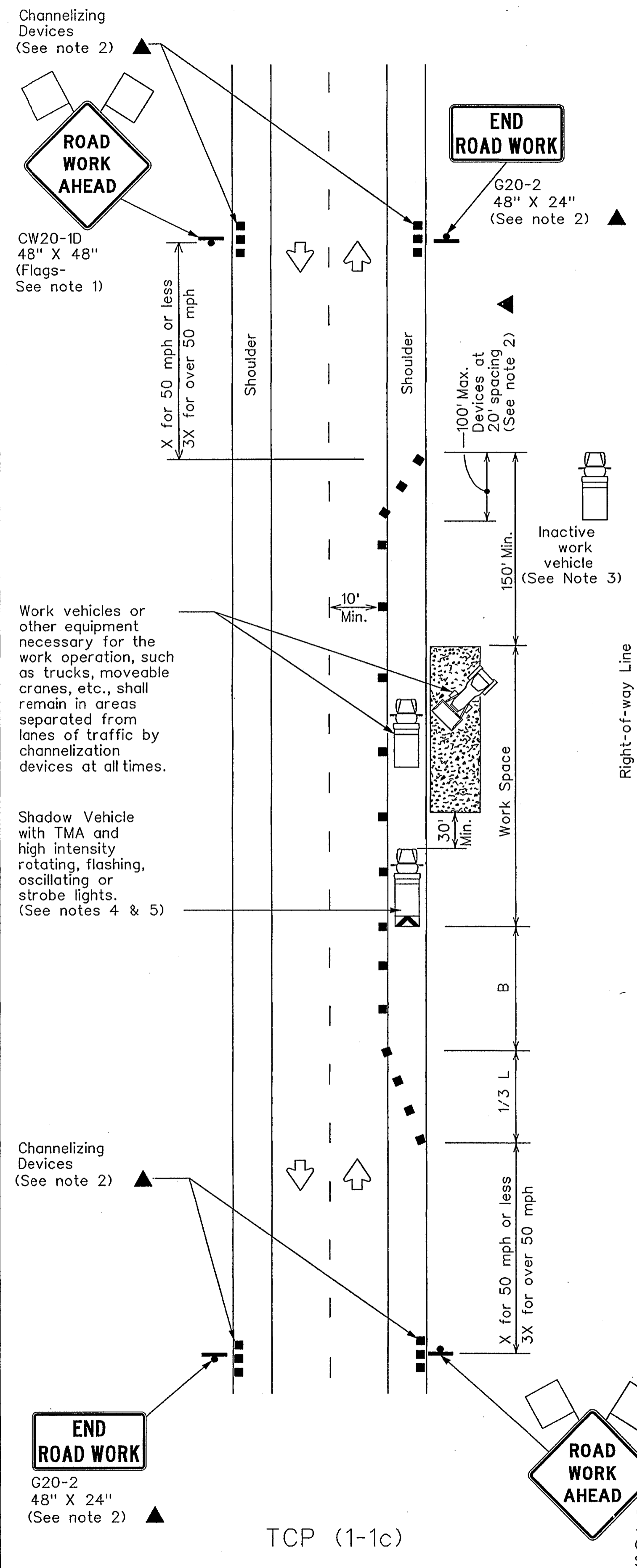
TCP (1-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed x	Formula	Minimum Desirable Taper Lengths x x			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70	700'	770'	840'	70'	140'	800'	475'	
75	750'	825'	900'	75'	150'	900'	540'	

x Conventional Roads Only
 x x Taper lengths have been rounded off.
 L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓		

GENERAL NOTES

- Flags attached to signs where shown are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
- Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
- A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
- Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
- See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
- CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

For construction or maintenance contract work, specific project requirements for shadow vehicles can be found in the project GENERAL NOTES for Item 502, Barricades, Signs and Traffic Handling.

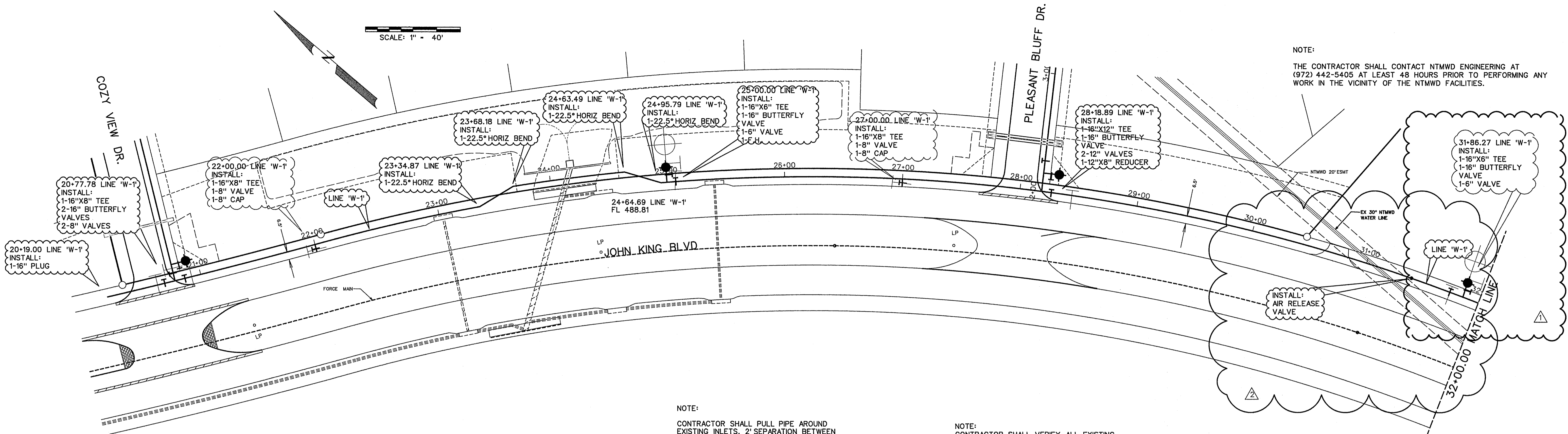
Texas Department of Transportation
Traffic Operations Division

TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK

TCP(1-1)-12

© TxDOT December 1985		DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
REVISIONS		CONT	SECT	JOB	HIGHWAY
2-94	2-12				
8-95					
1-97					
4-98					
		DIST	COUNTY	SHEET NO.	
				151	

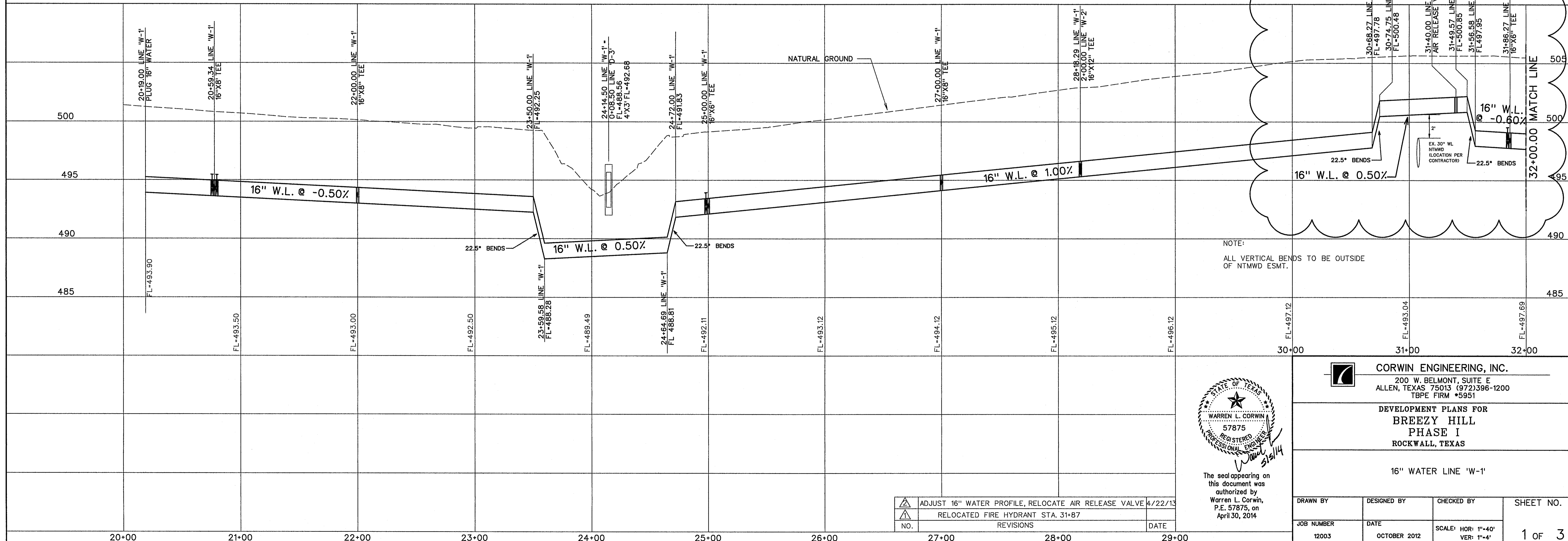
SCALE: 1" = 40'



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.

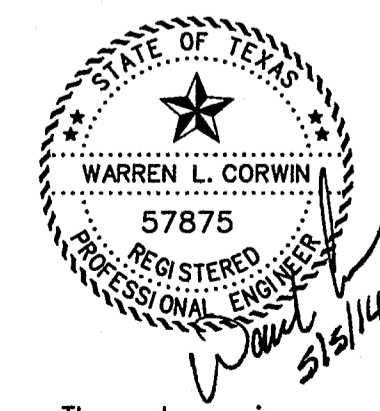
NOTE:
CONTRACTOR SHALL PULL PIPE AROUND EXISTING INLETS. 2' SEPARATION BETWEEN EDGE OF PIPE AND EXISTING INLET.

NOTE:
CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. EXISTING UTILITY LOCATION AND ELEVATION ARE BASED ON AS-BUILT DRAWINGS AND MAY DIFFER IN ACTUAL LOCATION AND ELEVATION.



NOTE:
ALL VERTICAL BENDS TO BE OUTSIDE OF NTMWD ESMT.

NO.	REVISIONS	DATE
1	ADJUST 16" WATER PROFILE, RELOCATE AIR RELEASE VALVE	4/22/13
2	RELOCATED FIRE HYDRANT STA. 31+87	



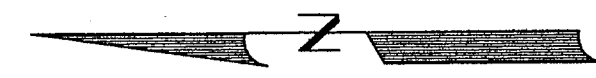
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200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200
TBP# FIRM #5951

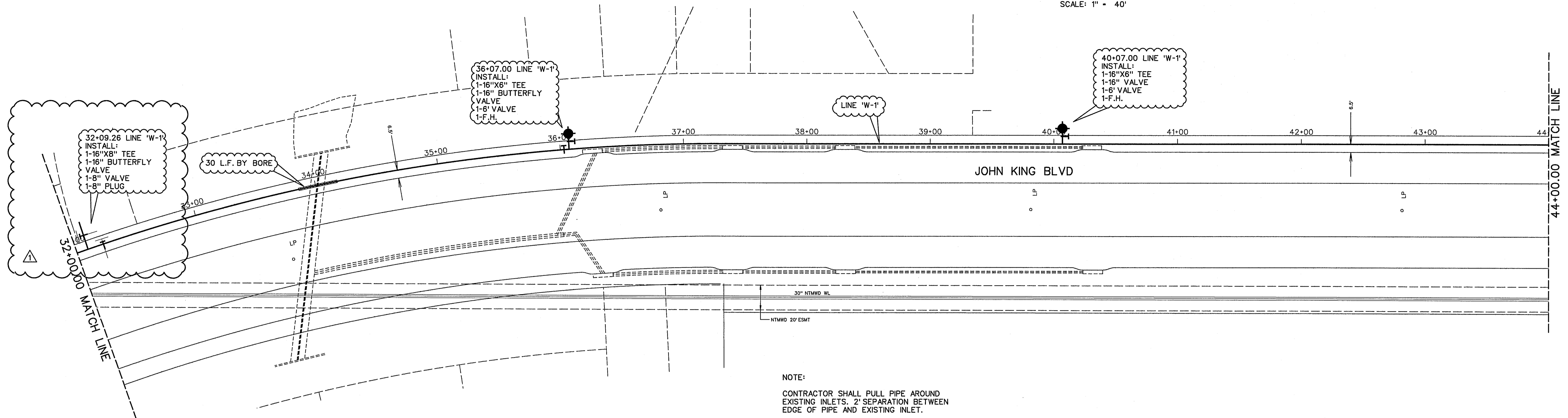
DEVELOPMENT PLANS FOR
BREEZY HILL
PHASE I
ROCKWALL, TEXAS

16" WATER LINE 'W-1'

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40'	1 OF 3
12003	OCTOBER 2012	VER: 1"=4'	

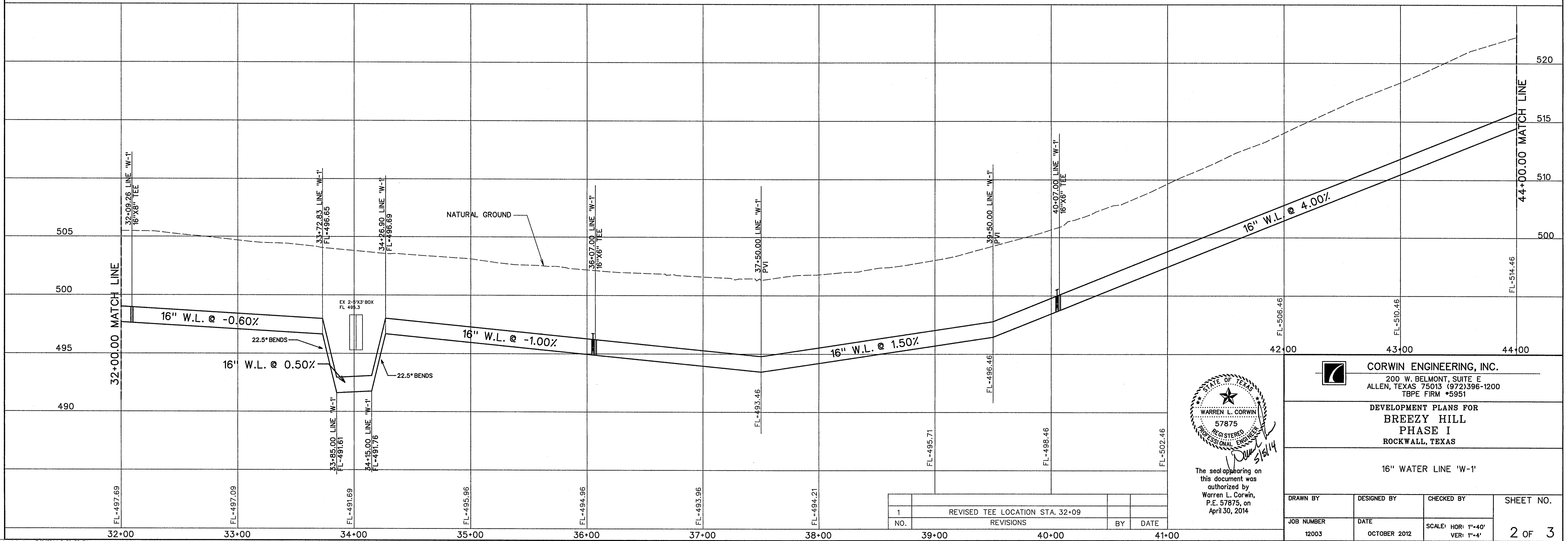


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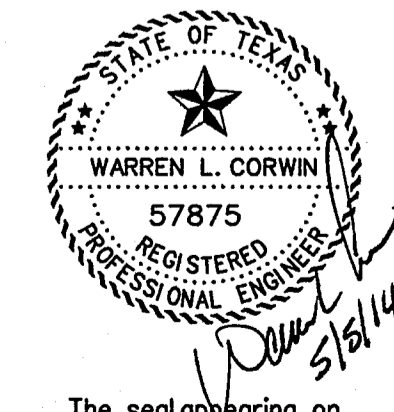


NOTE:
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NOTE:
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NO.	REVISIONS	BY	DATE
1	REVISED TEE LOCATION STA. 32+09		



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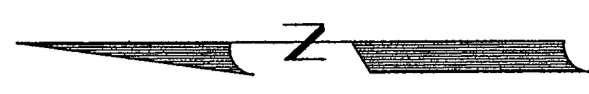
CORWIN ENGINEERING, INC.
 200 W. BELMONT, SUITE E
 ALLEN, TEXAS 75013 (972)396-1200
 TBPE FIRM #5951

DEVELOPMENT PLANS FOR
BREEZY HILL
 PHASE I
 ROCKWALL, TEXAS

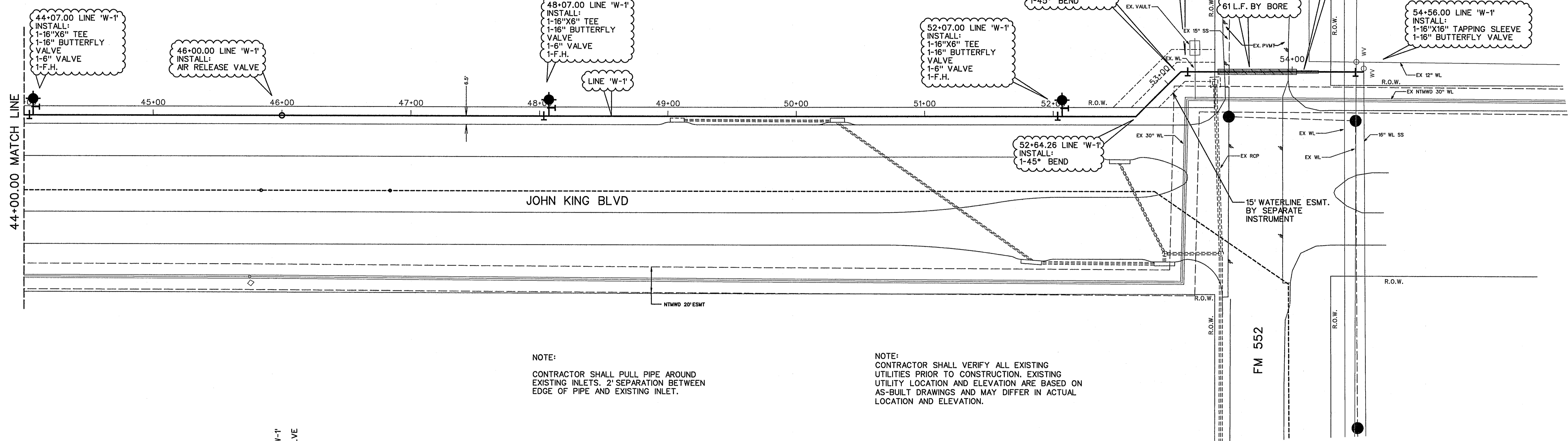
16" WATER LINE 'W-1'

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	2 OF 3
12003	OCTOBER 2012		

NOTE:
CONTRACTOR SHALL VERIFY ALL UTILITIES
FOR LOCATION AND ELEVATION PRIOR
TO CONSTRUCTION.

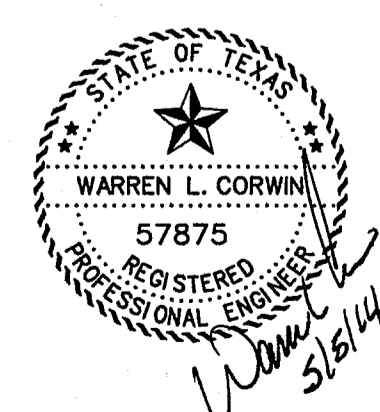
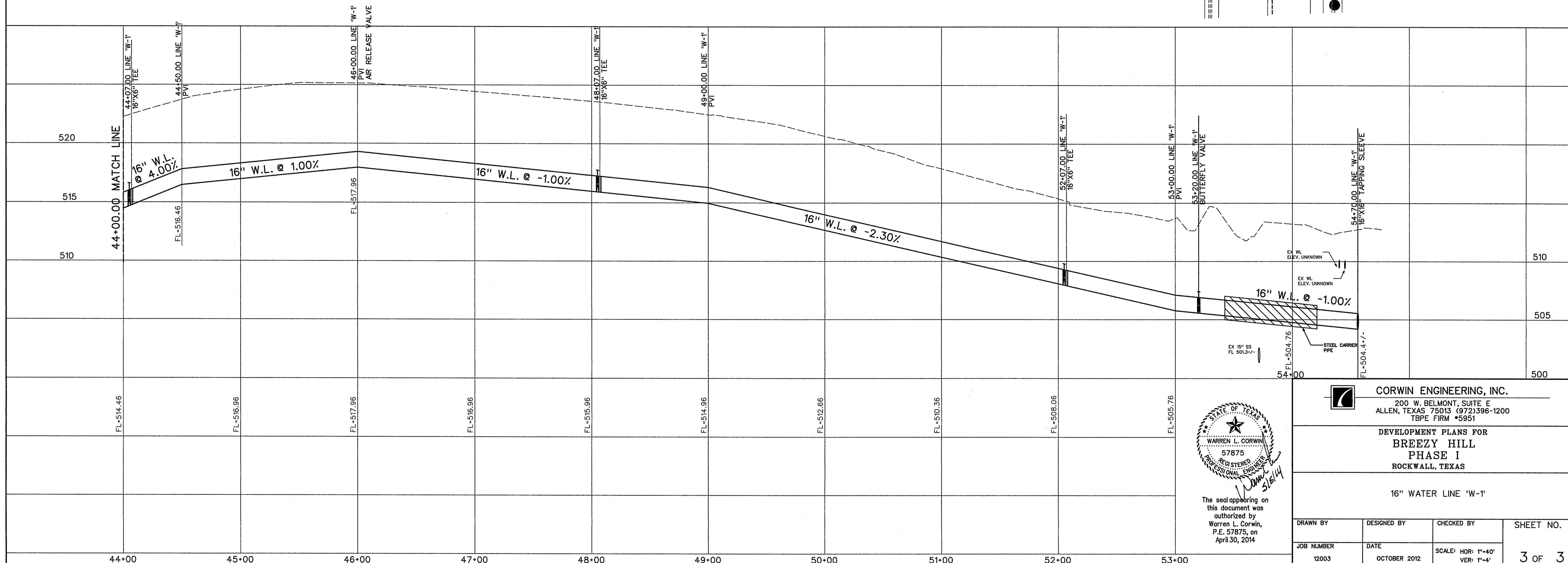


SCALE: 1" = 40'



NOTE:
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EXISTING INLETS, 2' SEPARATION BETWEEN
EDGE OF PIPE AND EXISTING INLET.

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TBPE FIRM #5951

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

16" WATER LINE 'W-1'

DRAWN BY 12003	DESIGNED BY OCTOBER 2012	CHECKED BY SCALE: HOR: 1"=40' VER: 1"=4'	SHEET NO. 3 OF 3
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