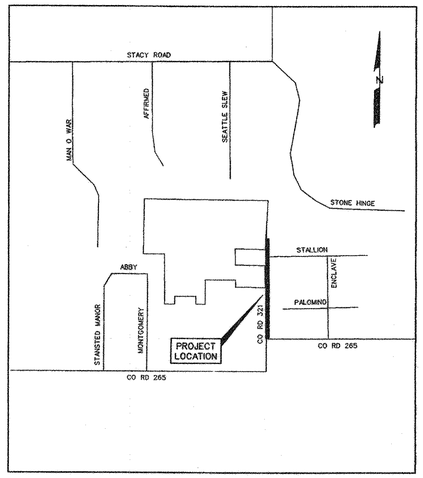
CONSTRUCTION PLANS
FOR
BROADMOOR ESTATES
C.R. #321 IMPROVEMENTS
CITY OF LUCAS, TEXAS

NOTE:

Plans and Construction are subject to that certain agreement by and between the City of Lucas, Texas and Scarborough Forest Ridge, LLC. (approved by City Council on August 2, 2012) providing for road improvements and intersection improvements to C.R. #321 and West Forest Grove Road.



VICINITY MAP
SCALE" 1"=1000'

INDEX

PREPARED FOR

SCARBOROUGH FOREST RIDGE, LLC.

16380 ADDISON ROAD, ADDISON, TEXAS 75001

CORWIN ENGINEERING, INC. — CONSULTING ENGINEERS

200 W. BELMONT, SUITE E — ALLEN, TEXAS 75013

AS-BUILT JUNE 2013
INFORMATION PROVIDED BY CONTRACTORS (NOT FIELD VERIFIED)

STATE OF TEXAS
BRANDON DAVIDSON
87682
REGISTERED PROFESSIONAL ENGINEER
6/28/13

The seal appearing on this document was authorized by Brandon Davidson P.E. 87682, on June 28, 2013

NO.	REVISIONS	BY	DATE
1	PER CITY COMMENTS	DS	9-5-12

AUGUST 2012

BROADMOOR ESTATES
C.R. #321 IMPROVEMENTS
11061

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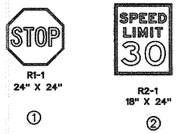
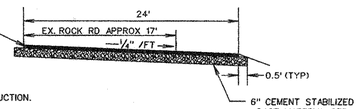


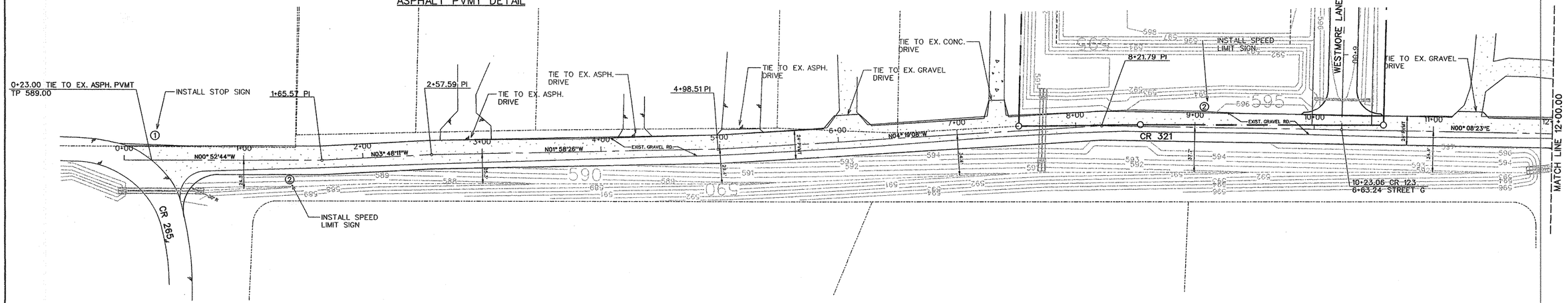
R1-1
24" X 24"
①

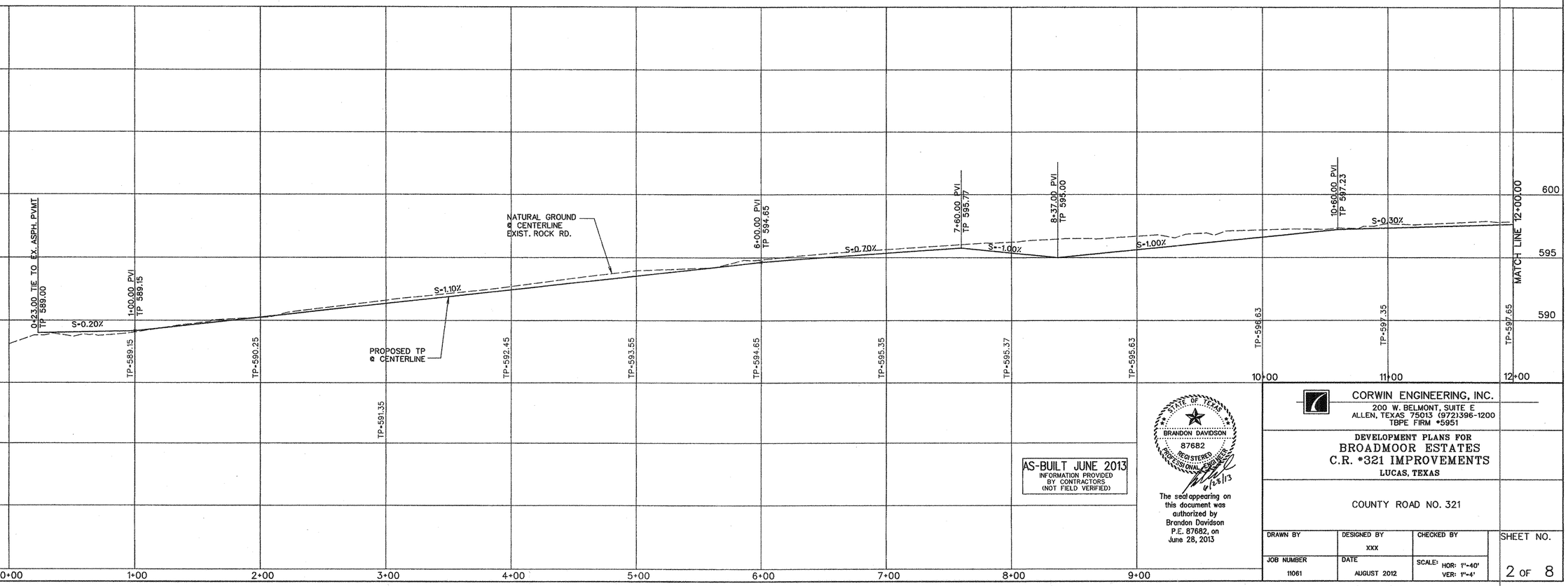
R2-1
18" X 24"
②

NOTE:
CONTRACTOR SHALL PROVIDE ACCESS FOR ALL EXISTING HOMEOWNERS DURING CONSTRUCTION.



ASPHALT PVMT DETAIL





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

DEVELOPMENT PLANS FOR
BROADMOOR ESTATES
C.R. #321 IMPROVEMENTS
LUCAS, TEXAS

COUNTY ROAD NO. 321

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
	XXX		2 OF 8
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	
11061	AUGUST 2012		

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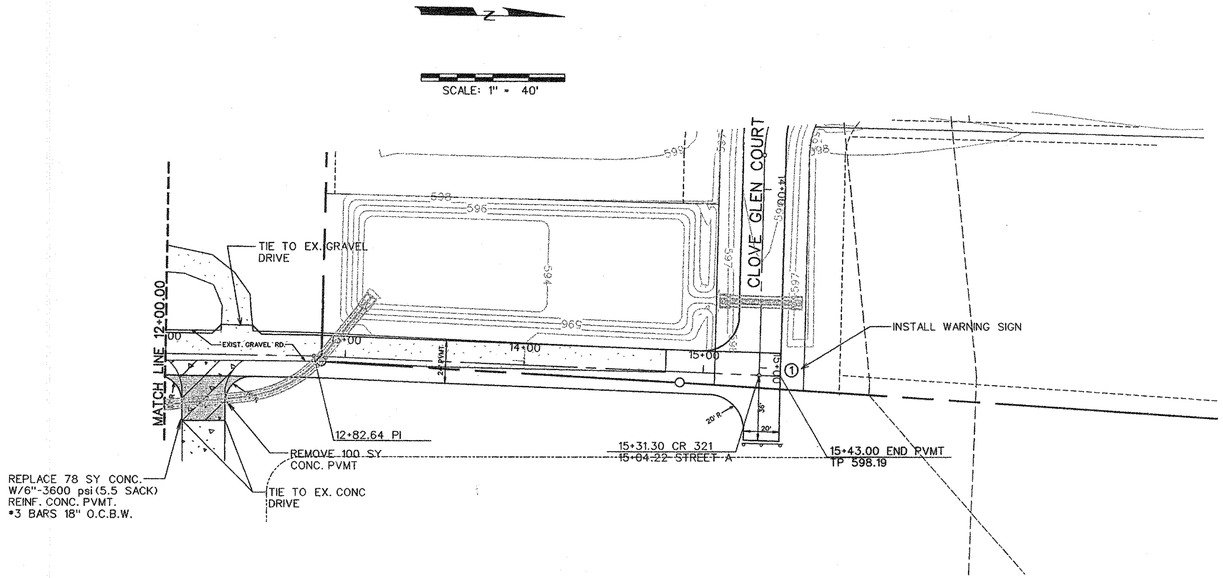

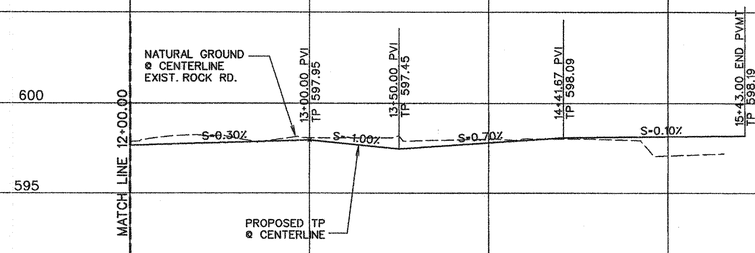

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DEVELOPMENT PLANS FOR
BROADMOOR ESTATES
C.R. *321 IMPROVEMENTS
LUCAS, TEXAS

COUNTY ROAD 321

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
	XXX		3 OF 8
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	
11061	AUGUST 2012		

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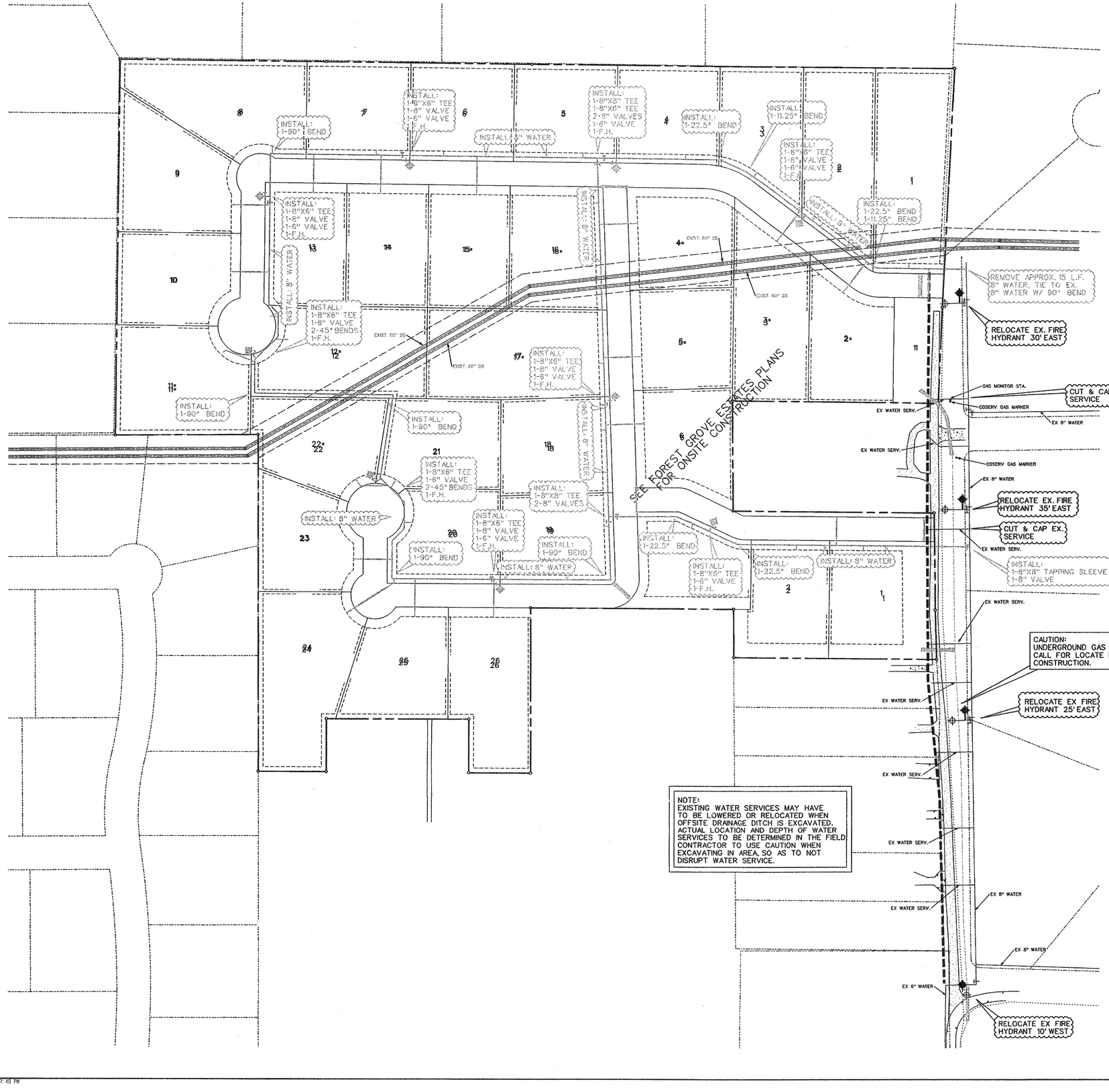

LEGEND

- PROP. WATER LINE
- PROP. FIRE HYDRANT AND VALVE
- PROP. GATE VALVE
- PROP. FLUSH VALVE
- EXIST. WATER LINE
- EXIST. FIRE HYDRANT AND VALVE

THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THIS PLAN ARE TAKEN FROM PUBLIC RECORDS. THE ENGINEER MAKES NO GUARANTEE THAT THE EXISTING UTILITIES SHOWN HEREON ARE COMPLETE OR IN THE CORRECT LOCATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.

NOTE:

ALL VALVES, FIRE HYDRANTS, METER BOXED, ETC. SHALL BE MARKED WITH A STAKE A MINIMUM OF 3 FEET ABOVE THE FIXTURE AND PAINTED ORANGE.

LIMITS OF CONSTRUCTION

STATE OF TEXAS
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DEVELOPMENT PLANS FOR
BROADMOOR ESTATES
C.R. #321 IMPROVMENTS
LUCAS, TEXAS

WATER PLAN

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
	XXX	XXX	4 OF 8
JOB NUMBER	DATE	SCALE:	
11061	AUGUST 2012	1"=40'	

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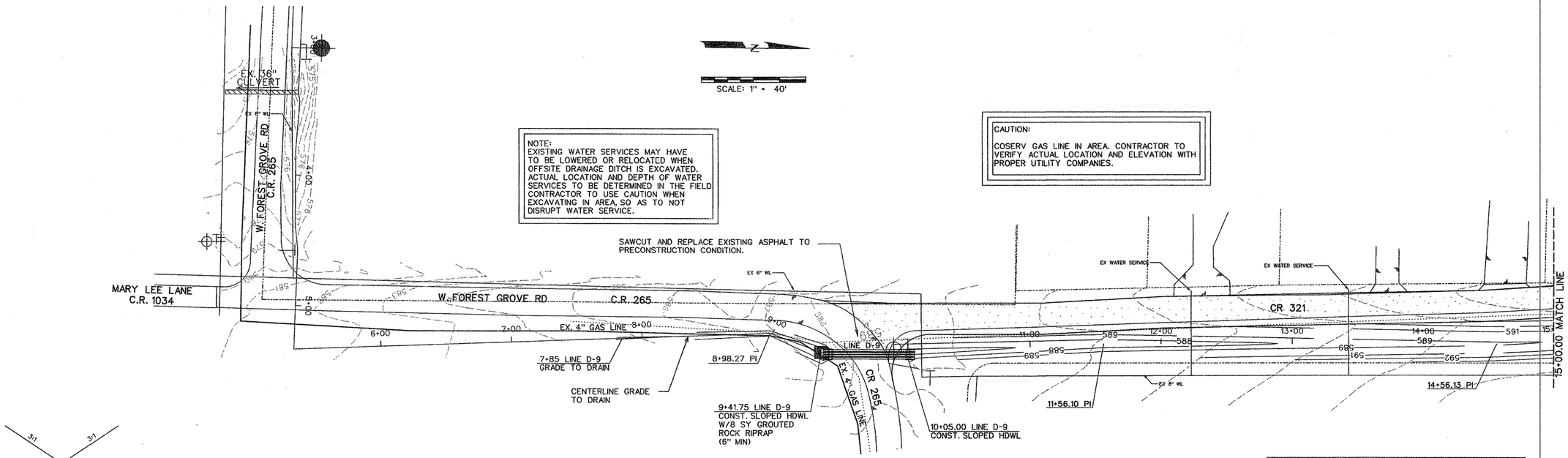


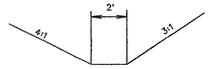
SCALE: 1" = 40'

NOTE:
EXISTING WATER SERVICES MAY HAVE TO BE LOWERED OR RELOCATED WHEN OFFSITE DRAINAGE DITCH IS EXCAVATED. ACTUAL LOCATION AND DEPTH OF WATER SERVICES TO BE DETERMINED IN THE FIELD CONTRACTOR TO USE CAUTION WHEN EXCAVATING IN AREA, SO AS TO NOT DISRUPT WATER SERVICE.

CAUTION:
COSERV GAS LINE IN AREA. CONTRACTOR TO VERIFY ACTUAL LOCATION AND ELEVATION WITH PROPER UTILITY COMPANIES.

GRADE TO DRAIN
N.T.S.

NOTE:
CONTRACTOR SHALL PROVIDE TRAFFIC CONTROLL TO KEEP ONE LANE OF TRAFFIC OPEN AT ALL TIME ON FOREST GROVE ROAD (COUNTY ROAD NO. 265)



PROPOSED DITCH SECTION
N.T.S.

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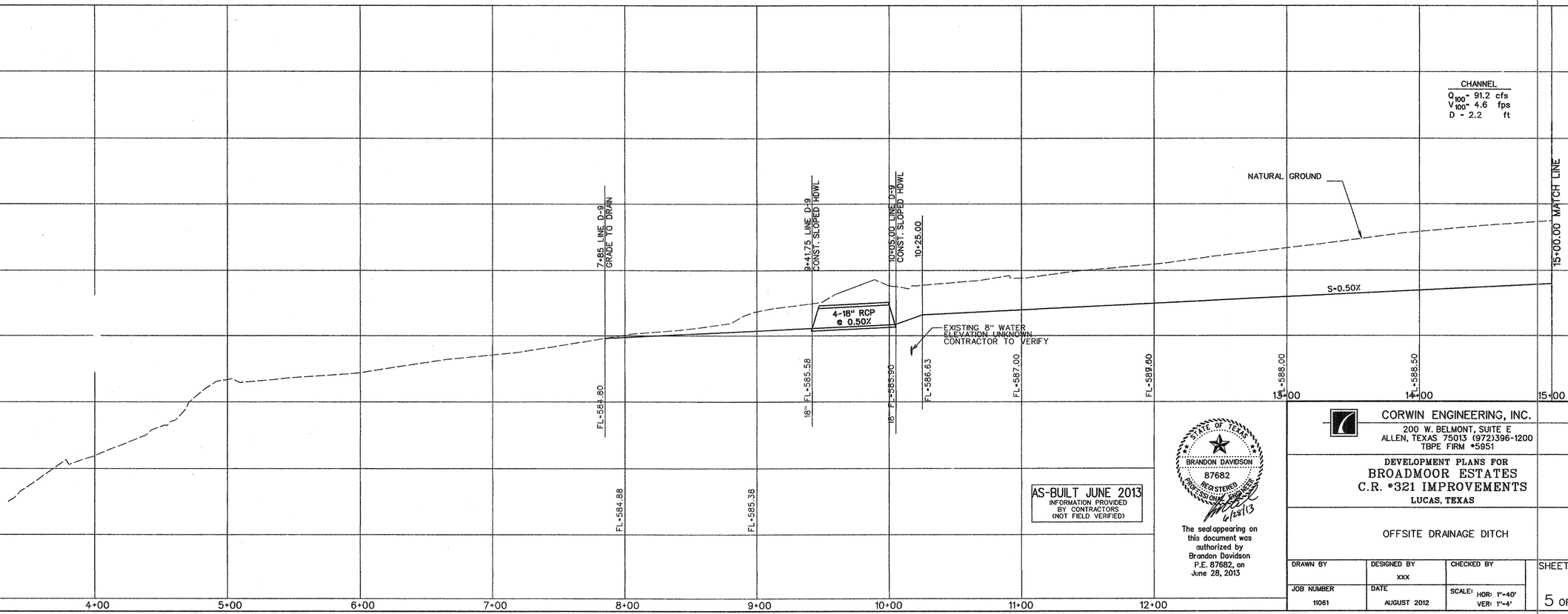

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C.R. #321 IMPROVEMENTS
LUCAS, TEXAS

OFFSITE DRAINAGE DITCH

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
	XXX		5 OF 8
JOB NUMBER	DATE	SCALE: HOR: 1"=40' VER: 1"=4'	
11061	AUGUST 2012		

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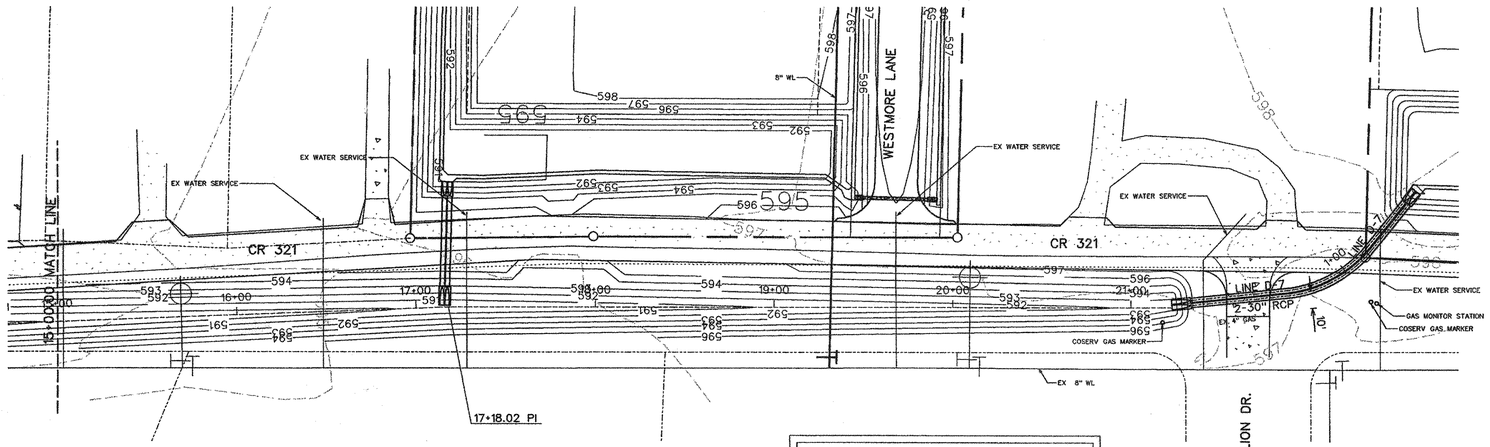
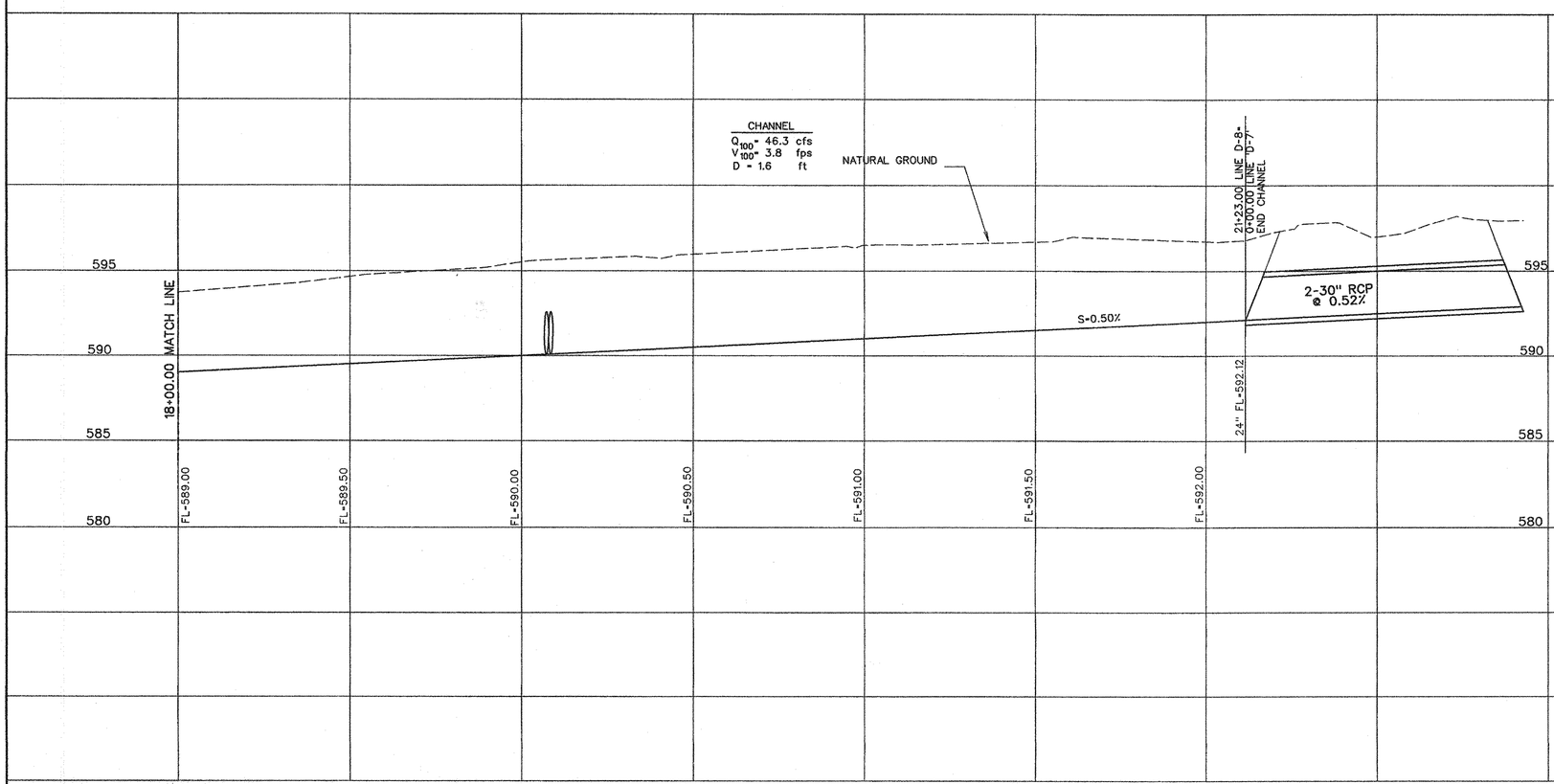
SCALE: 1" = 40'



CAUTION:

COSERV GAS LINE IN AREA. CONTRACTOR TO VERIFY ACTUAL LOCATION AND ELEVATION WITH PROPER UTILITY COMPANIES.



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OFFSITE DRAINAGE DITCH

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
	XXX		6 OF 8
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11061	AUGUST 2012		

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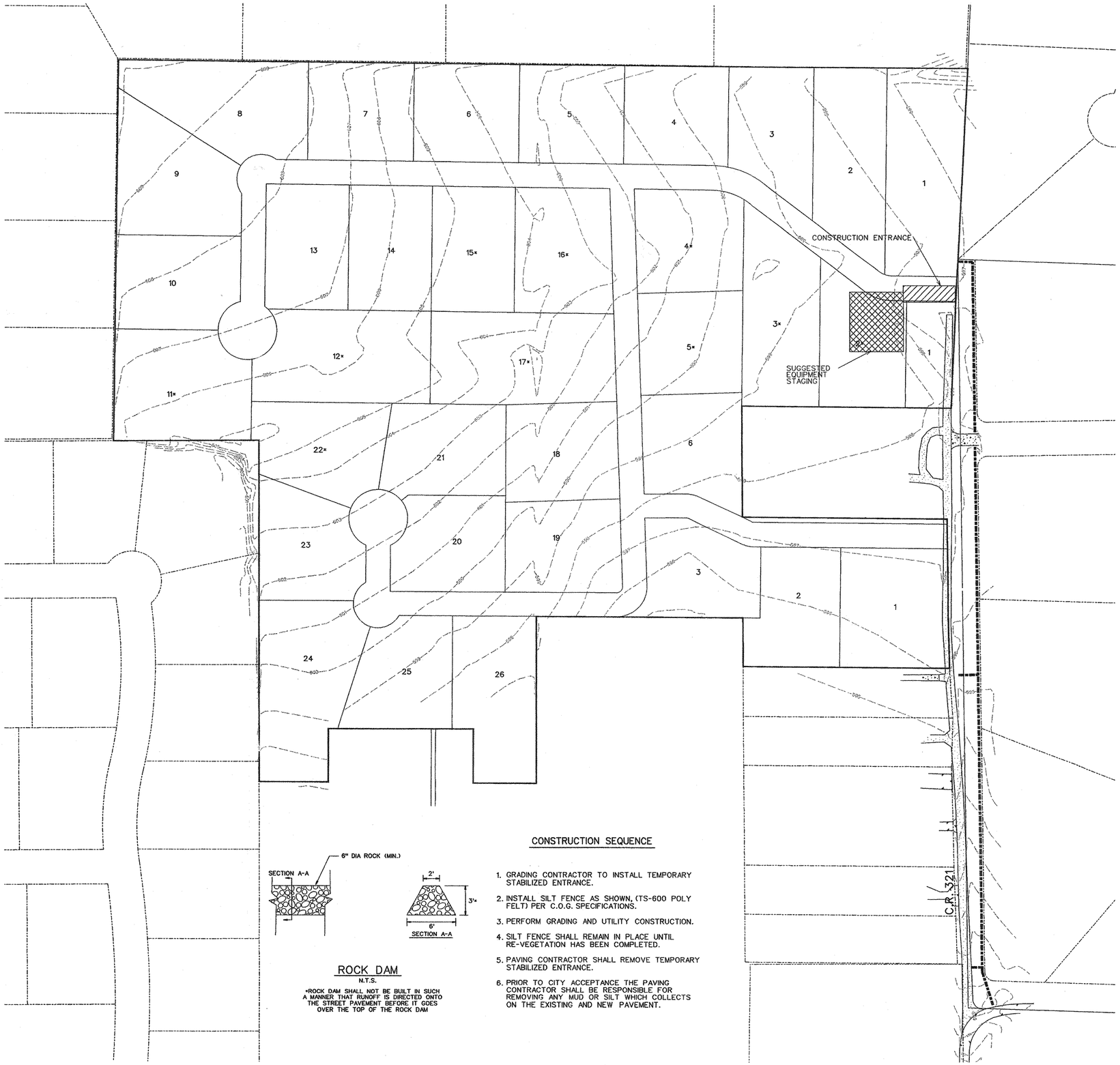

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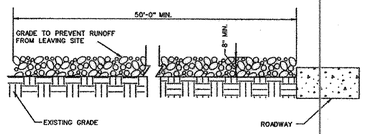
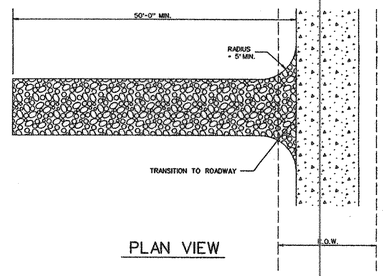
SCALE: 1" = 100'

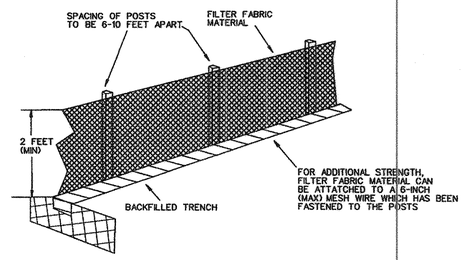


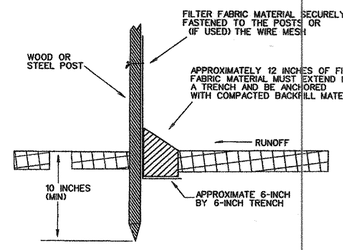
PROFILE



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. SILT FENCE SHALL REMAIN IN PLACE UNTIL RE-VEGETATION HAS BEEN COMPLETED.
5. PAVING CONTRACTOR SHALL REMOVE TEMPORARY STABILIZED ENTRANCE.
6. 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) ----------

AS-BUILT JUNE 2013
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200 W. BELMONT, SUITE E
ALLEN, TEXAS 75013 (972)396-1200
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DEVELOPMENT PLANS FOR
BROADMOOR ESTATES
C.R. #321 IMPROVMENTS
LUCAS, TEXAS

EROSION CONTROL PLAN

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
	XXX	XXX	
JOB NUMBER	DATE	SCALE:	
11061	AUGUST 2012	1"=40'	7 OF 8

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WATER SYSTEM
General Notes

All work and materials shall be in accordance with City's standard specifications and general design standards.

1. All tapping sleeves and valves shall be full body ductile iron.

2. Valves to be Mueller, Waterous, or Clow -150 psi test.

3. Fittings shall of the mechanical joint type, flanged where applicable, and be manufactured by US Pipe, American, or other as approved by the City - Class 250. All fittings shall be restrained by the use of Mega-Lugs or approved equal and concrete thrust blocking.

4. Fire hydrants to be American Darling, and Waterous three-way standard thread with valve in lead or approved equal. All mains steamer nozzles shall have a nominal inside diameter of 4-inches.

5. Water lines in the area of storm drain inlets shall be constructed behind the inlet by pulling the pipe using longitudinal bending in accordance with the manufacturer's requirements. Fittings may be used if bending is impractical: consult the project City Construction Inspector.

6. Water lines crossing under storm drains and sanitary sewer lines shall have a minimum of 18" clearance below storm drains and two (2) feet clearance below sanitary sewer lines or otherwise as governed by TNRCC Chapter 290 requirements. Parallel water lines shall be at least nine (9) feet clear horizontally to sanitary sewer lines and manholes. Where minimum clearance cannot be achieved, water lines shall be encased six (6) inches around in concrete to ten (10) feet either side of utility crossing. Where water lines cross creeks or ditches the water line shall be protected by concrete encasement at least ten (10) feet past the embankment slope on each side.

7. Water mains: All water lines shall have a minimum of 48" cover over the top of the pipe. All new water mains shall be PVC pipe in accordance with the following: C900 DR 14 for 4"-8", C900 DR 18 for 12 ", and C905 DR 18 for over 12 ", all "blue in color as per City specifications: the pipe shall be laid on a minimum of class "B: embedment (see Detail Drawing No. 14-A). Water mains up to 12" shall be installed 2' back of curb: mains larger than 12" shall be installed at least 3' from the back of curb depending upon conditions. Detectable metallic tape ("Blue-Caution Buried Water Below" or approved equal) shall be installed to a maximum depth of 12" below finished grade (after compaction) above all PVC mains.

8. The Contractor shall install fire hydrants as the locations shown. A M.J. and flanged tee with a flanged end to M.J. gate valve is required so that the gate valve is anchored to the main.

9. Fire Hydrants shall be painted as follows:
A. Tnemec Series 43-38H Diffused Aluminum, Silver for 6 inch mains
B. Tnemec Series 2H Hi-Build Tneme-Gloss, True Blue Safety for 8 inch mains.
C. Tnemec Series 2H Hi-Build Tneme-Gloss, Yellow Safety for 12 inch or larger water mains.

All hydrants shall be painted with two coats of Tnemec Series 43-38H Diffused Aluminum, Silver paint. When a color code other than Tnemec Series 43-38H Diffused Aluminum Silver is required the top bonnet, including the lip and all nozzle caps shall be painted the appropriate color.

10. All bolts and nuts used with mechanical joint fitting shall be "Cor-Ten" steel or approved equal.

11. The installation of a blue stemsonite (or equal) model 88-SSA fire hydrant marker will be installed opposite fire hydrants just off center to the side of the street adjacent to the hydrant.

12. Polyethylene encasement - the Contractor shall furnish and install polyethylene wrap around the ductile iron pipe, related fittings and valves. This wrap shall be an 8 mil. thickness polytube. Seams and overlaps shall be wrapped and held in place by two (2) inch wide plastic backed adhesive tape, Polyken 900 or Scotchrap no. 50, or an approved equal, with approximate two (2) foot laps on the polytube. The wrap on the barrel of the pipe shall be loose enough to allow the film to shift with the soil. The wrap shall be installed without breaks, tears, or holes in the film. The cost of the polyethylene tube wrap and complete installation shall be included in the unit price bid for the furnishing and the installation of ductile iron pipe and related fittings and valves.

13. Valve boxes shall be furnished at the required length in order to be set to final grade on each gate valve. After the final clean up and alignment has been completed, the Contractor shall pour a reinforced concrete block 24"x 24" x 6' around all valve boxes so the finished grade is level with the finished parkway. All valve stack components shall be cast iron. Valve boxes over four (4) feet deep will require extensions. All valves shall be marked with a saw on the curb or pavement with "V". The "V" shall point to the location of the valve as follows: If the valve is in the paving, the "V" shall be marked upright: if the valve is outside the paving, the "V" shall be marked upside down.

14. The Contractor shall coordinate operation of all existing valves with the City. Contact the City Construction Inspector at the Construction Inspection Department at 972-335-5560.

15. All water lines shall be pressure tested to 200 psi for a three-hour continuous period. Leakage rate shall not exceed 25 gallons per inch of nominal diameter per mile of pipe over a 24-hour period. Contractor shall flush and sterilize lines and prove lines to be free of fecal coliform organisms by obtaining samples for laboratory tests for contamination. The Contractor shall reflush and resterilize until all samples prove free from contamination.

16. All residential water services shall be as follows:
A. Water services shall be normally located in the center of the lot. A water meter box, as approved by the City, with lock lid shall be installed two (2) feet back of curb line.
B. The water service shall be a minimum of 1" diameter continuous type "K" soft copper pipe. Sand embedment shall be used around the pipe and corporation stop. Each service saddles shall be brass body with double bronze flattened straps (no banded) - Ford, Mueller, or City approved equal.
C. Contractor shall tie a 1" wide piece of blue plastic flagging to the water service meter setter and shall leave a minimum of 36" of flagging exposed after backfill: after curb and paving is completed.
D. The utility contractor shall install the water services to a point two (2) feet back of the curb line at a depth of 12 inches. The meter box shall be furnished and installed by the Contractor after the paving Contractor has completed the fine grading in back of the curb. Each service location will be marked on the curb with a single vertical saw mark by the utility Contractor and tied to property corners on the "As-Recorded" plans.

17. For non-residential water services, the meter box shall be furnished and installed by the Contractor after the paving Contractor has completed the final grading in the back of the curb. Meter boxes/vaults shall be located outside of paving. Each service location will be marked on the curb or pavement with a single vertical saw mark by the utility Contractor and tied to property corners on the "as Recorded" plans.

18. Density testing requirements: Frequency of tests shall not be less than one every 300 linear feet of main pipe per 2.0' of lift until final grade, starting at 2.0' above top of pipe. Water services are to be tested at a rate of 1 for every 6 services that cross the proposed right-of-way or every 300 lf of water service installed. Every other main, stubout, and fire hydrant lead that cross the existing or proposed street, alley, or fire lane subgrade shall also receive at least one set of density tests. All ditches shall be mechanically tamped and compacted to 95% standard proctor density at 0-4% above optimum moisture. Water jetting is not permitted.

19. The Contractor shall be responsible for providing "As-Recorded" plans to the engineer of record showing the location of water services and valves by distance to lot lines. This information shall be placed and marked "As-Recorded" by the engineer of record. Copies of these "As-Recorded" plans shall be furnished to the City as required.

20. The Contractor shall furnish maintenance bond of 10% (ten percent) of the total contract price to the City to run two years from the date of acceptance of the system by the City

PAVING SYSTEM
General Notes

1. Absolutely no earthwork, lime application, or other preparation of the subgrade for paving of streets, alleys, or fire lanes shall be initiated without authorization from the City Construction Engineer. Once all testing of underground facilities has been completed and verified to meet the City's specifications, the City Construction Engineer will issue a letter to the project owner or superintendent that will authorize the initiation of all subgrade work in preparation for paving.

2. All street, alley, and fire land right-of-way or easement width shall be excavated full width in accordance with the street and sidewalk section to be constructed.

3. The subgrade for all streets, alleys, and fire lanes shall be stabilized with hydrated lime material to a distance 12 inches beyond the back of curb or edge of paving as applicable. The amount of lime material shall be that amount which will reduce the plasticity index (PI) below fifteen (15) as verified by testing by an approved laboratory: the City will add one (1) percent to the laboratory results for field variation. Laboratory testing (lime series) shall generally be conducted when all utilities are complete and the roadway subgrade is complete. Lime shall be applied by percentage dry unit weight of soil treated to a minimum in place compacted thickness of six (6) inches. At the discretion or the City, additional testing for the presence of sulfates in the pavement subgrade may be required at the Contractor's expense. If the sulfates are present at an unacceptable concentration, the City may require a recommendation for further treatment of the soil from the approved laboratory.

4. Subgrade testing requirements: All fill and shall be compacted to no less that 95% of standard proctor density at 0 - 4% above optimum moisture content. Frequency of tests shall not exceed every 300 linear feet of fill. Frequency of testing shall not exceed every 300 linear feet per 2.0' of lift until final grade starting at 2.0' above natural/sound grade to top of subgrade. All street alley, and fire land subgrade shall be compacted to no less than 95% of standard proctor density at 0 - 4% above optimum moisture content. Frequency of tests shall not exceed every 300 linear feet of subgrade, alternating from left quarter point to center line to right quarter point. Verification of lime depth, testing for subgrade gradations/pulverizations, and plasticity indices of the soil shall also be conducted: the frequency of this testing shall be as previously mentioned All testing of materials required for the construction of any street, alley or fire lane shall be performed by an approved agency for testing materials. The nomination of the testing laboratory and the payment of such testing services shall be made by the Contractor. The engineer shall approve the laboratory nominated to do the testing of materials. It shall be the Contractor's responsibility to show by standard testing procedures that the work constructed does meet the requirements of the City's specifications.

5. Minimum design requirements: All street, alley and fire lane paving shall be designed to have a minimum compressive strength of 3500 psi at twenty-eight (28) days with a minimum of five (5) sacks of cement as verified by testing in an approved laboratory. Two batch designs shall be submitted to the City Construction Engineer for approval: one for machine work and one for hand work. All batch designs must be signed by the testing laboratory and include all documentation, such as results of field trial testing. A fly ash batch design may be submitted for approval on a specific job basis: fly ash up to twenty (20%) by weight of cement replacement may be used in machine pours. If applicable, all batch designs shall specify an appropriate sulfate resistant cement or equivalent. Slump shall be 1 - 3 inches for all machine work and 1 - 4 inches for all hand work. Streets (depending on classification) and fire lanes shall have a minimum thickness of six (6) inches: alleys shall have a minimum thickness of 8" -5-8". Upon completion of construction, all streets and fire lanes shall be cored for depth (2" cores) at a spacing of 300 ft maximum alternating from left quarter point to center line to right quarter point. Alleys shall be cored for depth (2" cores) at a spacing of 300 ft maximum, along the center line. Pavement of a thickness less than the thickness shown on the plans by more than one-quarter (1/4) inch but less than three-quarter (3/4) inch will be considered deficient. The Contractor shall pay to the City two (2) times the unit bid price per square yard for the area determined to deficient in thickness as defined above. Pavement deficient in strength by more than three-quarter (3/4) inch shall be removed and replaced completely. The deficient area shall be cored replaced immediately on ten (10) foot centers or one (1) per panel to be proved out. All streets, alleys, and fire lanes and will require cylinders to be made for strength tests by the approved laboratory. Samples for strength tests of each class of concrete placed each day shall be taken by an approved laboratory not less than once a day, nor less than once for each 100-150 cu yd of concrete. Four (4) cylinders shall be made: one shall be broken at 7 day, two (2) shall be broken at twenty-eight (28) days, and one shall be held in case of damage of any of the other three (3). The average strength of two (2) cylinders from the same sample, tested at twenty-eight (28) days is required for each strength test: any strength test beyond twenty-eight (28) is unacceptable. If the twenty-eight (28) day design strength is not reached upon strength testing the cylinders, the deficient are shall be cored immediately on ten foot centers or one per panel to be proved out. For any areas deficient in strength by not more than 500 psi, the Contractor shall pay to the City one (1) time the unit bid price per square yard for the area determined to deficient in strength. For any areas deficient in strength by more than 500 psi but more than 1000 psi, the Contractor shall pay to the City two (2) times the unit bid price per square yard for the area determined to deficient in strength. Pavement deficient in strength by more than 1000 psi shall be removed and replaced completely. No more than three (3) - four (4) inch cores shall be extracted per panel without prior City approval. A rebar detector shall be used to ensure that the cored areas are clean of any rebar. All coring and additional laboratory testing shall be at the expense of the Contractor. The width to be considered for any deficiencies shall be the full width of the pavement.

6. Any section of all existing public or private streets, alleys or firelanes shall be replaced within 72 hours of removal.

7. The Contractor shall furnish a maintenance bond of 10% (ten percent) of the total contract price to the City to run two (2) years from the date of final acceptance of the system by the City.

UTILITY CROSSINGS
General Notes

1. Tunneling and boring under City streets shall be accomplished by means of jacking, boring, or tunneling equipment which is subject to the City approval prior to start of construction.

2. The voids outside of the carrier pipe or casing pipe shall be backfilled by hydraulically placed material so that there are no open voids over the roof of the funnel or bore. This shall be done without damage to the roadway structure.

3. All bore pits, trenches, and inspection holes shall be backfilled within 48 hours of the installation of utility lines. The method of compaction shall be such that a soil density equal to that existing prior to the start of construction will be required as verified by any approved testing laboratory. Any excess or surplus material resulting due to displacement of utility lines and conduits shall be disposed of in an acceptable manner to the City.

4. The street sections that are shown as typical sections shall apply to any alleys, driveways, roadways, etc. that will be within a City right-of-way of easement.

5. The Contractor shall be required to install an necessary warning and safety devises that would protect the safety and health of the public until the work has been finished and accepted by the City.

6. The use of a casing pipe will be based upon specific project location and soil conditions. In general, the minimum casing thickness is 0.25 inch and the material shall be steel. Where more than one section is required, the casing ends shall be welded together. Raci spacers, or City approved equal shall be used to support the carrier pipe. The use of wood skids is no long permitted.

STORM SEWER SYSTEM
General Notes

1. All storm sewer pipe or box culvert in right-of-way or fire lanes shall be reinforced concrete pipe as per City Specifications and shall be laid on a minimum of a compacted crushed stone or pea gravel cushion, four inches thick below the bottom of the pipe shall unless otherwise approved by the City. The initial backfill of select material or fine granular shall be required to a minimum of the spring line of the pipe unless otherwise approved by the City.

2. Density testing requirements: Frequency of tests shall not be less than one every 300 linear feet of pipe per 2.0' of lift until final grade, starting at 2.0' above top of pipe. Every other lateral: stubout that crosses the existing or proposed street, alley, or fire lane subgrade: inlet: and junction box will receive a density test every lift. All ditches shall be mechanically tamped and compacted to 95% of standard proctor density at 0 - 4% above optimum moisture. Water jetting is not permitted.

3. The joints shall be constructed and jointed together in such a manner that no spill through of backfill will occur. This includes the lift holes used in certain pipe or box sizes. Approved joint materials are concrete mortar: cold applied, plastic asphalt joint compound: rubber gaskets: and cold applied, preformed plastic gaskets.

4. Storm drainage inlets shall be as indicated on the approved construction plans. For secondary and major street intersections, a recessed type inlet will be required. For industrial and residential streets, a curb line inlet will be required unless otherwise approved. A round manhole cover with locking device shall be placed on all inlet tops. The top shall be placed near the outlet pipe. All inlets shall have a shall have a compressive strength of 4000 psi at 28 days.

5. All precast box culverts or other special structures in any right-of-way or fire lane easement will require a certification from the manufacturer that the product meets the design dimensions and twenty-eight (28) day compressive strength. All cast-in-place box culverts or other special structures in and right-of-way and fire lane or utility easements will require cylinders to be made for strength tests by the approved laboratory. Samples for strength tests of each class of concrete placed each day shall be taken not less than once a day, nor less than once for each 100-150 cu yd of concrete, nor less than once for each 5000 sq ft of surface area for slabs or walls. Four (4) cylinders shall be made: one shall be broken at 7 day, two (2) shall be broken at twenty-eight (28) days, and one shall be held in case of damage of any of the other three (3). The average strength of two (2) cylinders from the same sample, tested at twenty-eight (28) days, is required for each strength test: any strength test beyond twenty-eight (28) days is unacceptable. If the twenty -eight day (28) day design strength is not reached upon strength testing the cylinders, the deficient area shall be cored immediately to be proved out. For any areas deficient in strength by not more than 500 psi, the Contractor shall pay to the City one (1) time the unit bid price per square yard for the area determined to deficient in strength. For any areas deficient in strength by more than 500 psi but not fore than 1000 psi, the Contractor shall pay to the City two (2) times the unit bid price per square yard for the area determined to deficient in strength. For any areas deficient in strength by more than 1000 psi, the structure shall be removed and reconstructed at the full expense of the Contractor. Prior to City acceptance of any penalty payments for any traffic bearing structure that does not meet 28 day design strength, the Design Engineer shall provide a sealed structural evaluation that assesses the performance adequacy of the deficient structure as constructed under the design service loads. All coring and additional laboratory testing shall be at the expense of the Contractor.

6. The Contractor shall furnish a maintenance bond of 10% (ten percent) of the total contract price to the City to run two (2) years from the date of final acceptance of the system by the City.

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.

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

DEVELOPMENT PLANS FOR
BROADMOOR ESTATES
C.R. #321 IMPROVMENTS
LUCAS, TEXAS

GENERAL NOTES

DRAWN BY	DESIGNED BY	CHECKED BY	SHEET NO.
	XXX	XXX	
JOB NUMBER	DATE	SCALE:	
11061	AUGUST 2012	1"=40'	8 OF 8