PUD 216-A

Crown Village at Elm Ridge

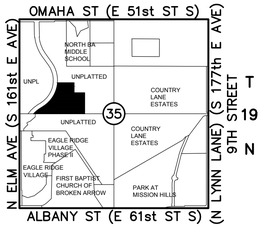
PART OF THE NORTHWEST QUARTER (NW/4) OF SECTION THIRTY-FIVE (35)
TOWNSHIP NINETEEN (19) NORTH, RANGE FOURTEEN (14) EAST, OF THE INDIAN MERIDIAN
AN ADDITION IN THE CITY OF BROKEN ARROW, TULSA COUNTY, STATE OF OKLAHOMA

NORTH

0 50 100 150

Scale: 1"= 100'
Tanner Consulting

R 14 E



Location Map
SCALE: 1"=2000'

OWNER:
Crown Village at Elm Ridge, LLC
AN OKLAHOMA LIMITED LIABILITY COMPANY
CONTACT: ED LEINBACH
2240 E. 49th Street, Suite 100
Tulsa, Oklahoma 74105
Phone: (918)743-2100

Benchmark
ADS CAP "BA41"
ELEVATION = 792.44 (NGVD 1929)
APPROXIMATELY 2644 FEET NORTH AND 2820 FEET WEST OF THE POINT OF BEGINNING FOR THE TRACT BEING PLATTED AS "CROWN VILLAGE AT ELM RIDGE".

Grading, Paving & Storm Sewer Index

Onsite Sanitary Sewer Index

Onsite Waterline Index

Offsite Sanitary Sewer Index

Offsite Waterline Index

Tract Description

BEING PLATTED AS "CROWN VILLAGE AT ELM RIDGE", AN ADDITION IN THE CITY OF BROKEN ARROW, TULSA COUNTY, STATE OF OKLAHOMA.

CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

REGISTERED PROFESSIONAL ENGINEER
DAN EDWIN TANNER
13090
OKLAHOMA
7-30-2013

Tanner Consulting, LLC
Land Planning
Civil Engineering
Land Surveying
Architecture
Interior Design

5323 SOUTH LEWIS AVENUE
TULSA, OKLAHOMA 74105
PHONE (918)745-9929
FAX (918)745-9969
www.tannerconsulting-llc.com

CERTIFICATE OF AUTHORIZATION NO.
CA 2661 EXP. 6/30/2015

BEFORE YOU DIG CALL OKIE

THESE PLANS AND DRAWINGS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY FORM OR MANNER WHATSOEVER WITHOUT FIRST OBTAINING THE EXPRESS WRITTEN PERMISSION AND CONSENT OF TANNER CONSULTING, NOR ARE THEY TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT OBTAINING SAID WRITTEN PERMISSION AND CONSENT. ANY CHANGES MADE FROM THESE PLANS WITHOUT CONSENT OF TANNER CONSULTING ARE UNAUTHORIZED, AND SHALL RELIEVE TANNER CONSULTING OF RESPONSIBILITY FOR ALL CONSEQUENCES ARRIVING OUT OF SUCH CHANGES.

MILESTONE	DATE
PLOT DATE: 7/30/13	

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARDS AND SPEC'S (INCLUDING O.D.O.T. 2009 EDITION).

Crown Village at Elm Ridge
Part of the NW/4, Section 35, T-19-N, R-14-E
Broken Arrow, Oklahoma

PROJECT: 12060
ISSUE DATE: 7/30/2013
ATLAS PAGE NO: 000

PLAN SCALE: (H) 1"=100'
(V) N/A

Overall Cover

P:\2012\12060\SHEETS\12060MCV.DWG, OVERALL, 7/30/2013 4:04:33 PM, DKETENBRINK, JJ, TANNER CONSULTING, LLC, OK CA 2661 Exp 6/30/2015

General Notes

1.1 TOPOGRAPHIC INFORMATION SHOWN HEREIN WAS PROVIDED BY TANNER CONSULTING, LLC.

1.2 WHEREVER THE WORD "CITY" APPEARS HEREIN THE SAME SHALL CONCLUSIVELY BE DEEMED TO MEAN THE CITY OF BROKEN ARROW, OKLAHOMA UNLESS THE CONTEXT CLEARLY DICTATES OTHERWISE.

1.3 THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY WORK ORDERS AND PERMITS FROM THE CITY, INCLUDING PROVISION OF BONDS AND INSURANCE AS REQUIRED.

1.4 THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT AT LEAST 24 HOURS PRIOR TO START OF CONSTRUCTION.

1.5 ONE-TIME CONSTRUCTION STAKING SHALL BE PROVIDED BY THE OWNER. ANY RESTAKING WILL BE REQUESTED AND PAID FOR BY THE CONTRACTOR.

1.6 TESTING SHALL BE PROVIDED BY THE OWNER. ANY FAILING TESTS SHALL BE RETESTED AT THE CONTRACTOR'S EXPENSE FOLLOWING CORRECTIVE ACTIONS.

Site Data Impervious Areas

LOT 1 TOTAL AREA	(13.87 ACRES)	603,990 SF
LOT 1 EXISTING IMPERVIOUS AREA	(0%)	0 SF
LOT 1 DEVELOPED IMPERVIOUS AREA	(53%)	323,084 SF
LOT 1 INCREASE IN IMPERVIOUS AREA	(53%)	323,084 SF
RESERVE 'A' TOTAL AREA	(4.00 ACRES)	174,281 SF
RESERVE 'A' EXISTING IMPERVIOUS AREA	(0%)	0 SF
RESERVE 'A' DEVELOPED IMPERVIOUS AREA	(0%)	0 SF
RESERVE 'A' INCREASE IN IMPERVIOUS AREA	(0%)	0 SF

Contact List

TANNER CONSULTING, LLC
DAN E. TANNER, PE, PLS
5323 SOUTH LEWIS AVE
TULSA, OK 74105
PHONE: (918) 745-9929

PSO
EVELYN SHELTON
5223 SOUTH GARNETT
TULSA, OK 74102
PHONE: (918) 250-6249

OKLAHOMA NATURAL GAS
SCOTT GIDEON - NEW SERVICE
5848 EAST 15TH STREET
TULSA, OK 74112
PHONE: (918) 831-8386

WINDSTREAM COMMUNICATION
SCOTT HAMILTON
2300 SOUTH 1ST PLACE
BROKEN ARROW, OK 74012
PHONE: (918) 451-3416

COX COMMUNICATIONS
KEVIN CATLETT
11811 EAST 51ST STREET
TULSA, OK 74145
PHONE: (918) 286-4658

Legend

B/L	BUILDING LINE
CB	CHORD BEARING
CD	CHORD DISTANCE
CO	SEWER CLEAN-OUT
DET	DETENTION
ESMT	EASEMENT
FF	FINISH FLOOR ELEVATION
FGF	FINISH GRADE FACE
FH	FIRE HYDRANT
FL	FLOWLINE
G	GUTTER
HDWL	HEADWALL
IP	IRON PIN
LF	LINEAR FOOT
LNA	LIMITS OF NO ACCESS
MH	MANHOLE
ODE	OVERLAND DRAINAGE ESMT
PVC	POLYVINYL CHLORIDE PIPE
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RET	RETAINING
SF	SQUARE FEET
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
TC	TOP OF CURB
TG	TOP OF GRATE
TR	TOP OF RIM
TW	TOP OF WALL
WL	WATERLINE
WM	WATER METER
WV	WATER VALVE
UG	UNDERGROUND GAS LINE
UE	UNDERGROUND ELECTRIC
UT	UNDERGROUND TELEPHONE
U/E	UTILITY EASEMENT
XFMR	TRANSFORMER

PUD 216-A

Crown Village at Elm Ridge

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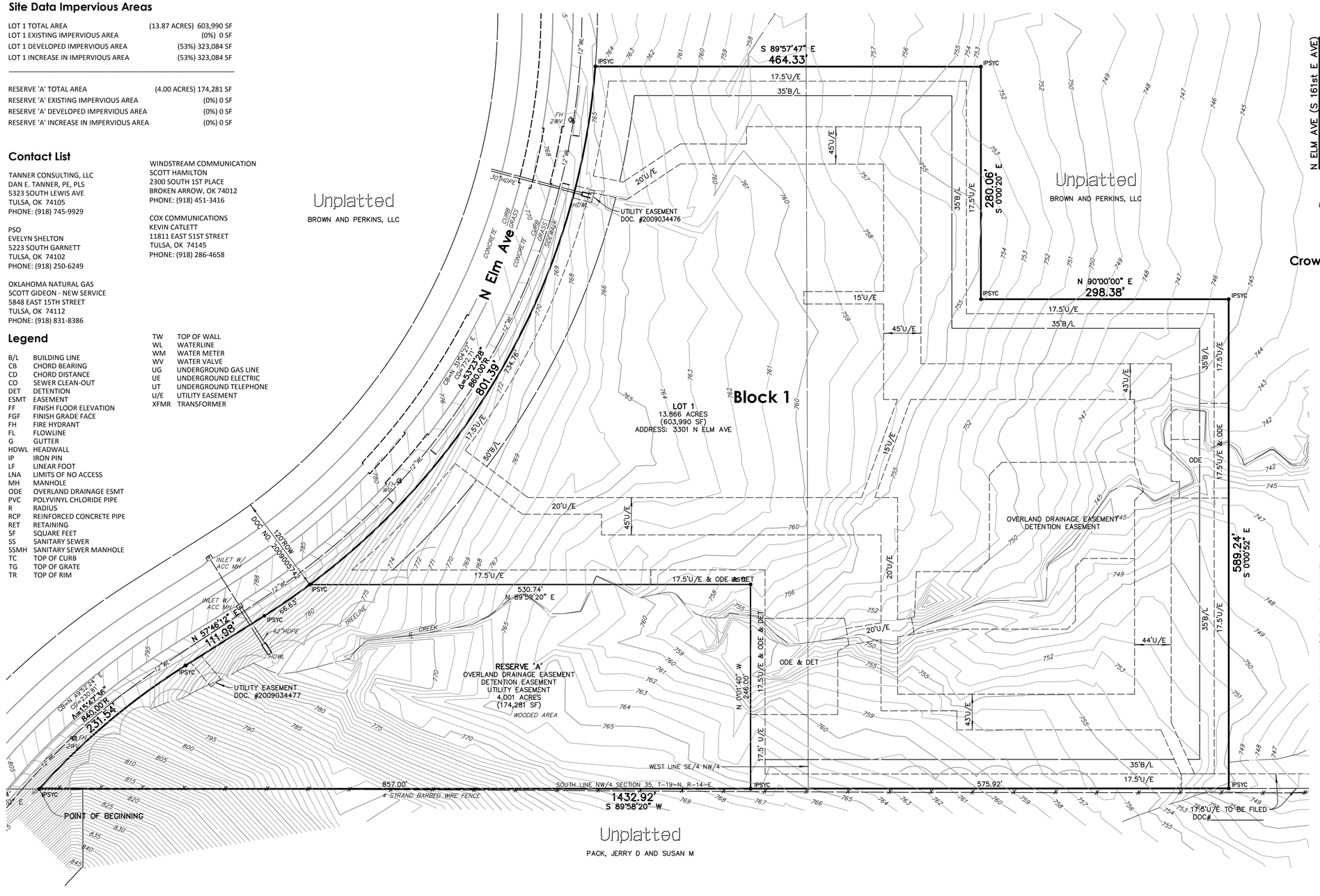

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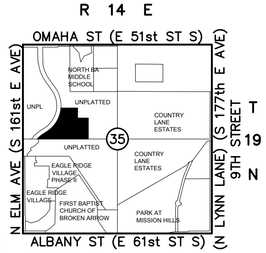

Location Map
SCALE: 1"=2000'

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Grading, Paving & Storm Sewer Index

Tract Description

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CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

REGISTERED PROFESSIONAL ENGINEER
DAN EDWIN TANNER
19090
OKLAHOMA
7/30/2013

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CERTIFICATE OF AUTHORIZATION NO. CA 2661 EXP. 6/30/2015

BEFORE YOU DIG CALL OKIE 811-232-0321

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MILESTONE	DATE
PLOT DATE: 7/30/13	

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Crown Village at Elm Ridge
Part of the NW/4, Section 35, T-19-N, R-14-E
Broken Arrow, Oklahoma

PROJECT:	12060
ISSUE DATE:	7/30/2013
ATLAS PAGE NO:	000
PLAN SCALE: (H)	1"=60'
(V)	N/A

Boundary And Existing Topo

1 OF 16

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Site Notes

2.1 ALL DIMENSIONS SHOWN HEREON ARE TO FACE OF CURB AND FACE OF BUILDING UNLESS SHOWN OTHERWISE ON PLANS.

2.2 THE CONTRACTOR SHALL MAINTAIN A TWO FOOT (2') SEPARATION BETWEEN THE GAS LINE CONDUIT AND ALL OTHER CONDUITS.

2.3 THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF ALL CONDUITS PRIOR TO PAVING WHETHER OR NOT SHOWN ON CIVIL PLANS.

2.4 BUILDINGS SHOWN HEREON ARE REPRESENTATIVE ONLY AND NOT FOR CONSTRUCTION. REFER TO ARCHITECTURAL PLANS FOR COMPLETE BUILDING DIMENSIONS, DETAILS AND SPECIFICATIONS.

2.5 CONTRACTOR SHALL COORDINATE ALL UTILITY SERVICES WITH UTILITY SUPPLIER. LAYOUT MAY BE MODIFIED AS NEEDED.

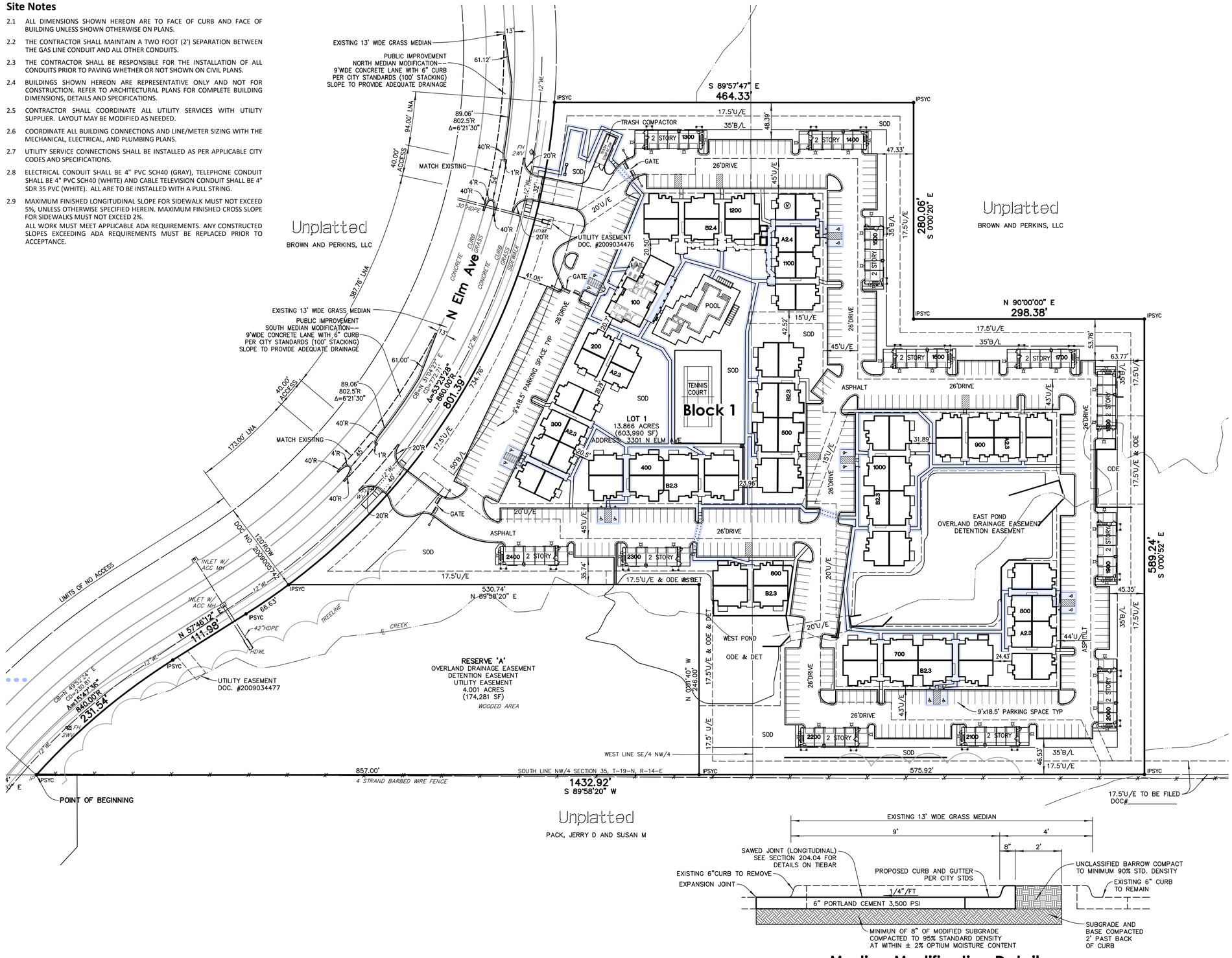
2.6 COORDINATE ALL BUILDING CONNECTIONS AND LINE/METER SIZING WITH THE MECHANICAL, ELECTRICAL, AND PLUMBING PLANS.

2.7 UTILITY SERVICE CONNECTIONS SHALL BE INSTALLED AS PER APPLICABLE CITY CODES AND SPECIFICATIONS.

2.8 ELECTRICAL CONDUIT SHALL BE 4" PVC SCH40 (GRAY), TELEPHONE CONDUIT SHALL BE 4" PVC SCH40 (WHITE) AND CABLE TELEVISION CONDUIT SHALL BE 4" SDR 35 PVC (WHITE). ALL ARE TO BE INSTALLED WITH A PULL STRING.

2.9 MAXIMUM FINISHED LONGITUDINAL SLOPE FOR SIDEWALK MUST NOT EXCEED 5%, UNLESS OTHERWISE SPECIFIED HEREIN. MAXIMUM FINISHED CROSS SLOPE FOR SIDEWALKS MUST NOT EXCEED 2%.

ALL WORK MUST MEET APPLICABLE ADA REQUIREMENTS. ANY CONSTRUCTED SLOPES EXCEEDING ADA REQUIREMENTS MUST BE REPLACED PRIOR TO ACCEPTANCE.



A Median Modification Detail
Scale: NONE

NORTH
0 10 20 30
Scale: 1"= 20'
Tanner Consulting

Benchmark

ADS CAP "BA41"
ELEVATION = 792.44 (NGVD 1929)
APPROXIMATELY 2644 FEET NORTH AND 2820 FEET WEST OF THE POINT OF BEGINNING FOR THE TRACT BEING PLATTED AS "CROWN VILLAGE AT ELM RIDGE".

Parking Data:

GARAGES: 72
OPEN PARKING SPACES: 408
(14 BEING HANDICAP PARKING)

Handicap Accessible Route:

THE HANDICAP ACCESSIB;E ROUTE IS SHOWN HEREON AS THE BLUE HATCHED AREA.

REGISTERED PROFESSIONAL ENGINEER
DAN EDWIN TANNER
19090
OKLAHOMA
7/30/2013

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PROJECT: 12060
ISSUE DATE: 7/30/2013
ATLAS PAGE NO: 000
PLAN SCALE: (H) 1"=20'
(V) N/A

Median Site Plan

2 OF 16

CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

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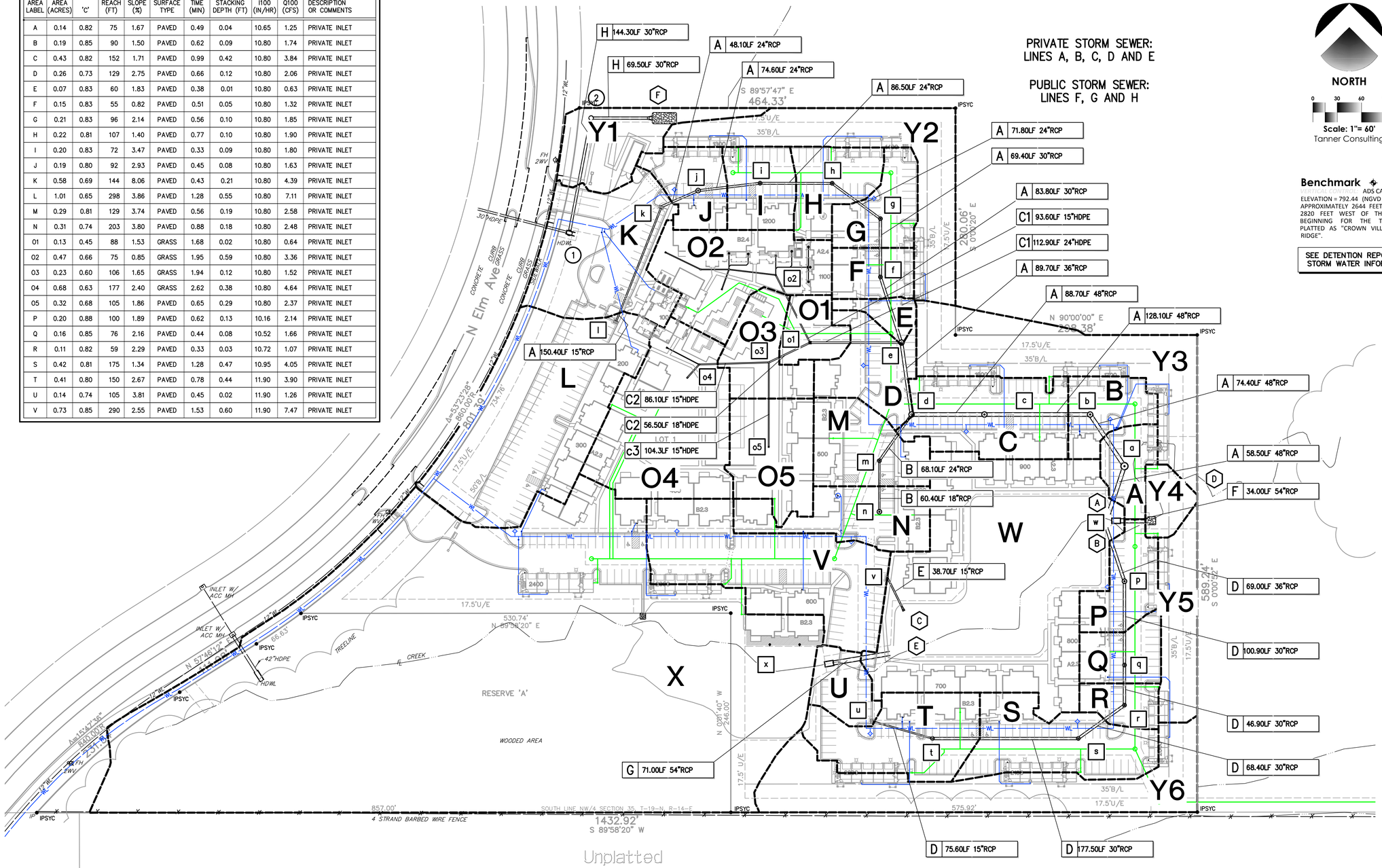
Rational Method Drainage Table

AREA LABEL	AREA (ACRES)	'C'	REACH (FT)	SLOPE (%)	SURFACE TYPE	TIME (MIN)	STACKING DEPTH (FT)	I100 (IN/HR)	Q100 (CFS)	DESCRIPTION OR COMMENTS
A	0.14	0.82	75	1.67	PAVED	0.49	0.04	10.65	1.25	PRIVATE INLET
B	0.19	0.85	90	1.50	PAVED	0.62	0.09	10.80	1.74	PRIVATE INLET
C	0.43	0.82	152	1.71	PAVED	0.99	0.42	10.80	3.84	PRIVATE INLET
D	0.26	0.73	129	2.75	PAVED	0.66	0.12	10.80	2.06	PRIVATE INLET
E	0.07	0.83	60	1.83	PAVED	0.38	0.01	10.80	0.63	PRIVATE INLET
F	0.15	0.83	55	0.82	PAVED	0.51	0.05	10.80	1.32	PRIVATE INLET
G	0.21	0.83	96	2.14	PAVED	0.56	0.10	10.80	1.85	PRIVATE INLET
H	0.22	0.81	107	1.40	PAVED	0.77	0.10	10.80	1.90	PRIVATE INLET
I	0.20	0.83	72	3.47	PAVED	0.33	0.09	10.80	1.80	PRIVATE INLET
J	0.19	0.80	92	2.93	PAVED	0.45	0.08	10.80	1.63	PRIVATE INLET
K	0.58	0.69	144	8.06	PAVED	0.43	0.21	10.80	4.39	PRIVATE INLET
L	1.01	0.65	298	3.86	PAVED	1.28	0.55	10.80	7.11	PRIVATE INLET
M	0.29	0.81	129	3.74	PAVED	0.56	0.19	10.80	2.58	PRIVATE INLET
N	0.31	0.74	203	3.80	PAVED	0.88	0.18	10.80	2.48	PRIVATE INLET
O1	0.13	0.45	88	1.53	GRASS	1.68	0.02	10.80	0.64	PRIVATE INLET
O2	0.47	0.66	75	0.85	GRASS	1.95	0.59	10.80	3.36	PRIVATE INLET
O3	0.23	0.60	106	1.65	GRASS	1.94	0.12	10.80	1.52	PRIVATE INLET
O4	0.68	0.63	177	2.40	GRASS	2.62	0.38	10.80	4.64	PRIVATE INLET
O5	0.32	0.68	105	1.86	PAVED	0.65	0.29	10.80	2.37	PRIVATE INLET
P	0.20	0.88	100	1.89	PAVED	0.62	0.13	10.16	2.14	PRIVATE INLET
Q	0.16	0.85	76	2.16	PAVED	0.44	0.08	10.52	1.66	PRIVATE INLET
R	0.11	0.82	59	2.29	PAVED	0.33	0.03	10.72	1.07	PRIVATE INLET
S	0.42	0.81	175	1.34	PAVED	1.28	0.47	10.95	4.05	PRIVATE INLET
T	0.41	0.80	150	2.67	PAVED	0.78	0.44	11.90	3.90	PRIVATE INLET
U	0.14	0.74	105	3.81	PAVED	0.45	0.02	11.90	1.26	PRIVATE INLET
V	0.73	0.85	290	2.55	PAVED	1.53	0.60	11.90	7.47	PRIVATE INLET



NORTH

0 30 60 90

Scale: 1"= 60'

Tanner Consulting

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SEE DETENTION REPORT FOR STORM WATER INFORMATION

CERTIFIED PROFESSIONAL ENGINEER
DAN EDWIN TANNER
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PLAN SCALE: (H) 1"=60'
(V) N/A

Storm Sewer Drainage Area

3 OF 16

CASE NUMBER: PT13-101
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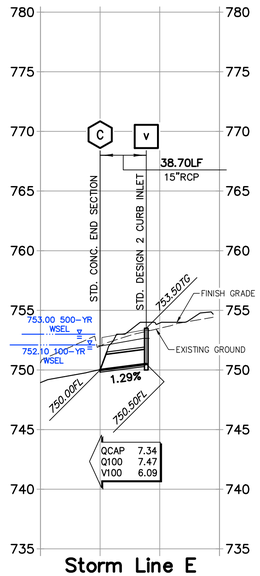

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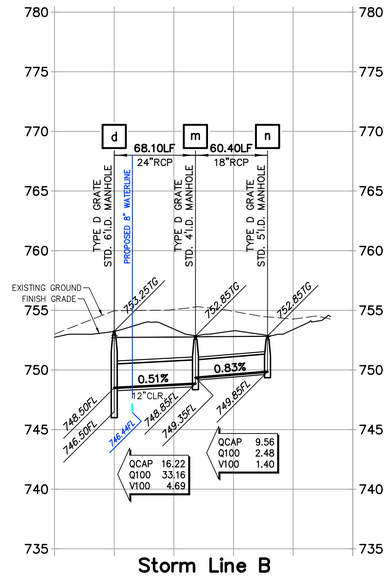

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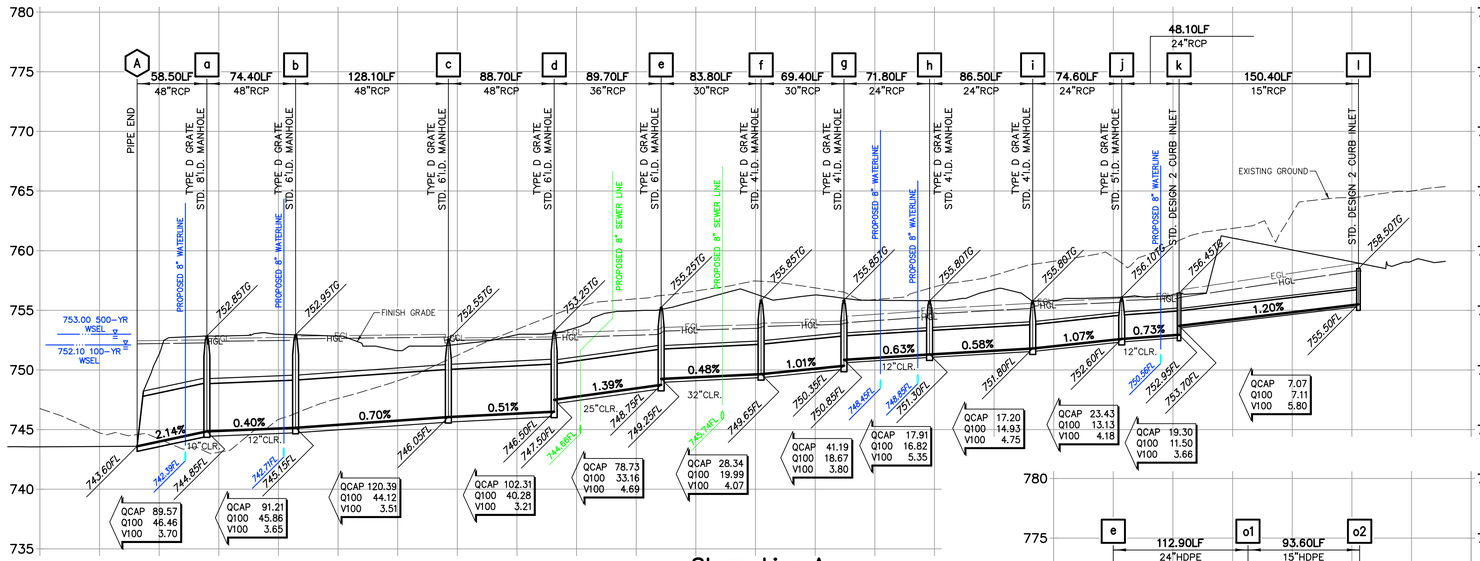

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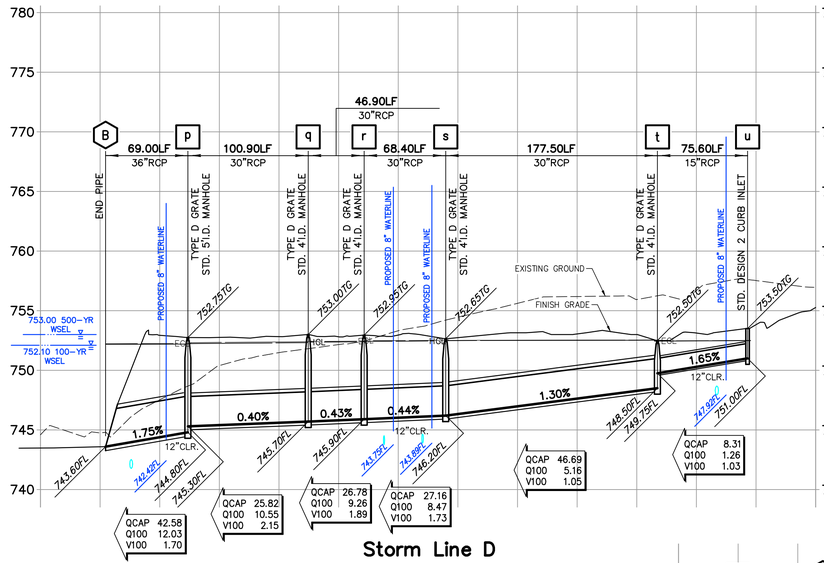

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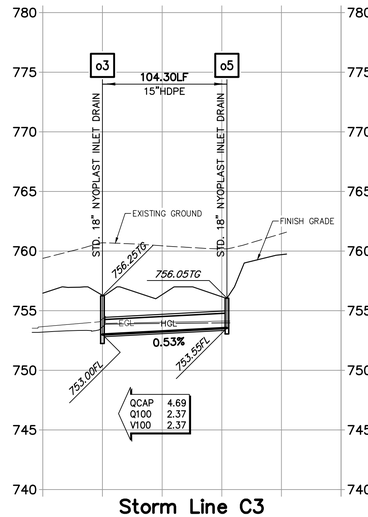
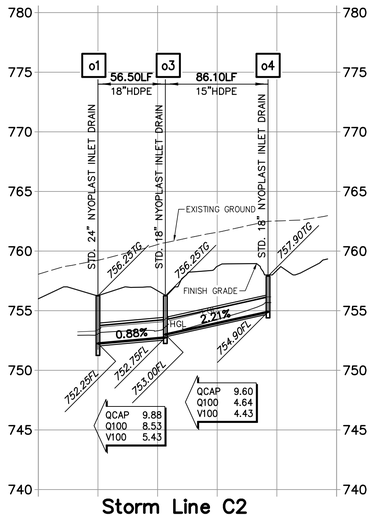


Storm Line C3



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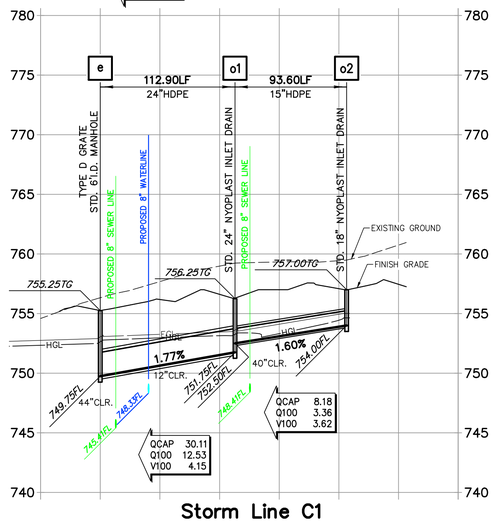
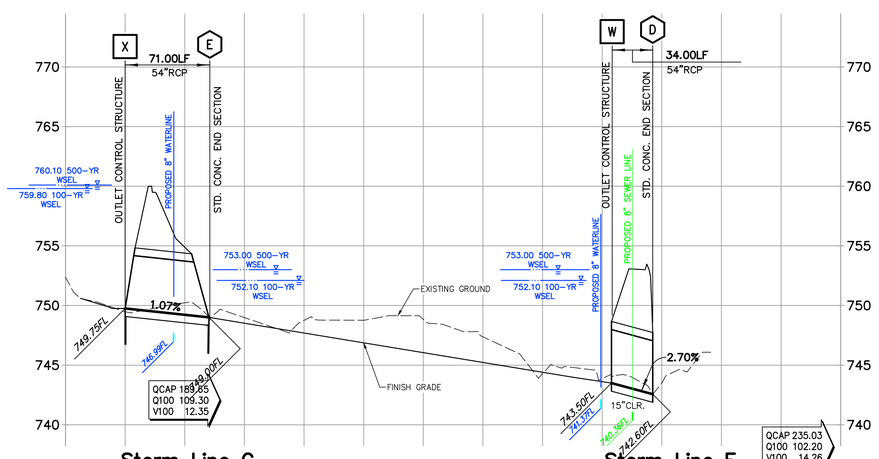
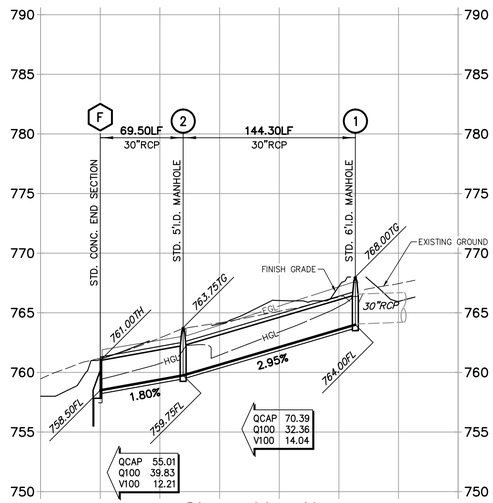


Storm Line C1



Storm Line G

Storm Line F



Storm Line H

Benchmark

VERTICAL CONTROL: ADS CAP "BA41" ELEVATION = 792.44 (NGVD 1929) APPROXIMATELY 2644 FEET NORTH AND 2820 FEET WEST OF THE POINT OF BEGINNING FOR THE TRACT BEING PLATTED AS "CROWN VILLAGE AT ELM RIDGE".

DENOTES AREAS TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY PRIOR TO UTILITY CONSTRUCTION.

UTILITY LINES LOCATED UNDER PAVED STREETS SHALL BE LAID IN TYPE A AGGREGATE BASE AND THE TRENCH COMPLETELY FILLED TO SUBGRADE WITH TYPE A AGGREGATE BASE COMPACTED TO 95% STANDARD DENSITY, OR FLOWABLE FILL, AS SHOWN ON PROFILES.

CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

DAN EDWIN TANNER
19090
OKLAHOMA
REGISTERED PROFESSIONAL ENGINEER
7-30-2013

Tanner Consulting, LLC
Land Planning
Civil Engineering
Land Surveying
Architecture
Interior Design

5323 SOUTH LEWIS AVENUE
TULSA, OKLAHOMA 74105
PHONE (918)745-9929
FAX (918)745-9969
www.tannerconsulting-llc.com

CERTIFICATE OF AUTHORIZATION NO. CA 2661 EXP. 6/30/2015

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MILESTONE	DATE

PLOT DATE: 7/30/13

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARDS AND SPEC'S (INCLUDING O.D.O.T. 2009 EDITION).

Crown Village at Elm Ridge

Part of the NW/4, Section 35, T-19-N, R-14-E

Broken Arrow, Oklahoma

PROJECT: 12060
ISSUE DATE: 7/30/2013
ATLAS PAGE NO: 000

PLAN SCALE: (H) 1"=60'
(V) 1"=6'

Storm Sewer Profiles

4 OF 16

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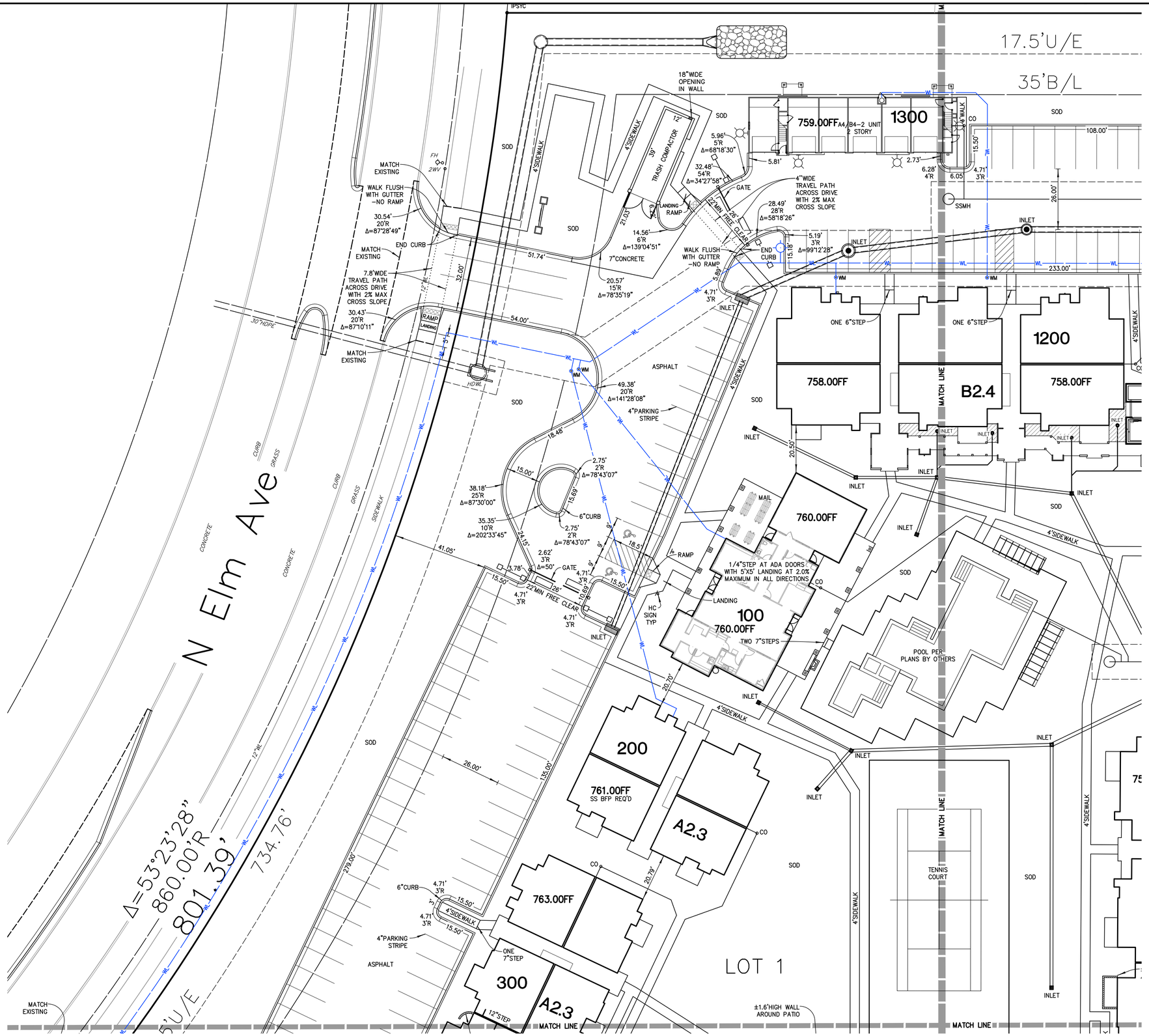

NORTH

0 10 20 30

Scale: 1"= 20'

Tanner Consulting

Benchmark

ADS CAP "BA41"
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PROJECT:	12060
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(V)	N/A

Site Plan (North West)

CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

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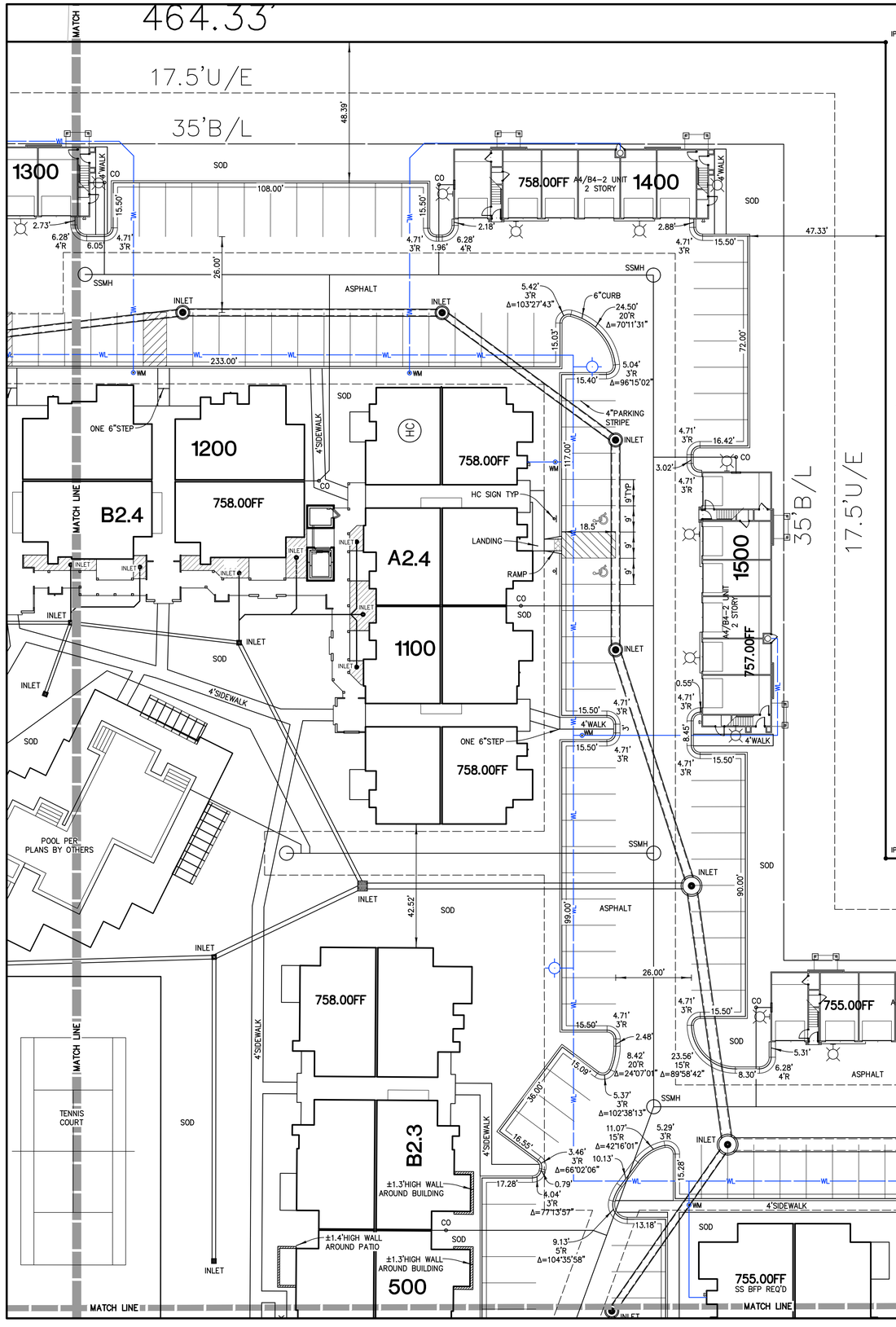

Paving Notes

6.1 THE PAVING CONTRACTOR SHALL NOTIFY THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT AT LEAST 24 HOURS PRIOR TO START OF CONSTRUCTION.

6.2 ALL UTILITY CONSTRUCTION (WATER, SEWER, AND STORM WATER) SHALL BE COMPLETED PRIOR TO SUBGRADE PREPARATION.

6.3 SUBGRADE SHALL BE FREE OF ALL ORGANIC MATTER, TREATED, AND COMPACTED ACCORDING TO THE PLANS AND SPECIFICATIONS.

6.4 SUBGRADE STABILIZATION SHALL BE AT THE DIRECTION OF THE ENGINEER, OR AS SPECIFIED IN SUBSURFACE GEOTECHNICAL REPORT.

6.5 PAVING CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OF UNACCEPTABLE SUBGRADE AT ALL UTILITY, CABLE OR CONDUIT CROSSINGS.

6.6 PAVING CONTRACTOR SHALL INSPECT SUBGRADE PRIOR TO COMMENCING WORK; AND, SHALL REPAIR AREAS WHERE GRADE VARIES MORE THAN 0.1 FEET, WHERE DENSITY IS LESS THAN 95% STANDARD PROCTOR OR WHERE SUBGRADE DRAINAGE IS INADEQUATE, AT THE UNIT PRICE BID FOR FINE GRADING IN THE PROPOSAL. SUBGRADE MODIFICATIONS, WHERE REQUIRED, SHALL NOT COMMENCE UNTIL SUBGRADE REPAIRS HAVE BEEN ACCEPTED BY THE ENGINEER OR OWNER'S REPRESENTATIVE.

6.7 SEQUENCE OF CONSTRUCTION FOR STABILIZED SUBGRADES SHALL BE BLUE TOP AND FINE GRADE, LIME OR FLY ASH TREAT AND STABILIZE, AND THEN FINAL FINE GRADING.

6.8 COMPACTION TESTS SHALL BE TAKEN A MINIMUM OF ONCE EVERY 4,500 SQUARE FEET FOR EACH EIGHT (8) INCH LIFT OF MATERIAL.

6.9 SUBGRADES SHALL BE PROOFROLLED IF THE STABILITY OF THE MATERIAL IS QUESTIONED. ALSO, THE SUBGRADE EXPOSED AFTER STRIPPING AND COMPLETING ANY CUTS SHALL BE PROOFROLLED ACCORDING TO THE GEOTECHNICAL REPORT.

6.10 PORTLAND CEMENT CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF NOT LESS THAN 3,500 PSI, A SLUMP OF NOT MORE THAN 3", AND SHALL CONTAIN SIX PERCENT (6%) AIR + OR - 1%.

6.11 ASPHALTIC CONCRETE SHALL HAVE DENSITY OF NOT LESS THAN 94% AND NOT MORE THAN 96%, AND HVEEM STABILITY OF NOT LESS THAN 40%.

6.12 THE CONTRACTOR SHALL FURNISH THE FOLLOWING TESTING SERVICES BY A REPUTABLE INDEPENDENT TESTING LABORATORY APPROVED BY THE OWNER'S REPRESENTATIVE:

6.12.1 FIELD DENSITY TESTS OF EMBANKMENT, SUBGRADE, OR BASE, AT LOCATIONS SPECIFIED BY THE INSPECTOR.

6.12.2 PLASTICITY TESTS OF THE SUBGRADE AT LOCATIONS SPECIFIED BY THE ENGINEER.

6.12.3 MOISTURE DENSITY CURVES FOR MATERIAL TO BE USED FOR EMBANKMENT OR SUBGRADE CONSTRUCTION.

6.12.4 MIX DESIGNS FOR PORTLAND CEMENT CONCRETE AND ASPHALTIC CONCRETE.

6.12.5 AGGREGATE GRADATION TESTS.

6.12.6 STABILITY, DENSITY, BITUMEN CONTENT AND GRADATION TESTS OF ASPHALTIC CONCRETE EVERY 200 TONS OR DAILY WHICHEVER IS LESS.

6.12.7 COMPRESSION TEST OF CONCRETE CYLINDERS AT SEVEN (7) AND TWENTY-EIGHT (28) DAYS WITH ONE (1) OF EACH TESTS CONDUCTED FOR EVERY 100 CUBIC YARDS PLACED.

6.12.8 ONE CORE SAMPLE, AT A LOCATION SPECIFIED BY THE INSPECTOR FOR EVERY 8,000 SQUARE FEET OF PAVEMENT.

6.13 THE CONTRACTOR SHALL FURNISH CERTIFICATION FROM THE MANUFACTURER THAT ALL MATERIALS MEET APPLICABLE SPECIFICATIONS. COPIES OF MATERIAL CERTIFICATION SHALL BE FURNISHED TO THE DEVELOPER PRIOR TO INSTALLATION OR INCORPORATION OF MATERIAL IN THE WORK.

6.14 THE PAVING CONTRACTOR SHALL ADJUST ALL VALVE BOXES TO GRADE AFTER PAVING HAS BEEN COMPLETED.

6.15 PAVEMENT STRIPING SHALL BE CONTRACTOR GRADE ACRYLIC STRIPING PAINT APPLIED WITH A COMMERCIAL COMPRESSED AIR OR AIRLESS SPRAY STRIPING MACHINE CAPABLE OF APPLYING AN EVEN COATING AT THE MANUFACTURER'S RECOMMENDED THICKNESS IN AN EVEN WIDTH ACROSS THE STRIPE. MARKING PAINT SHALL BE APPLIED STRAIGHT AND EVEN AT A RATE OF ONE(1) GALLON PER THREE TO FOUR HUNDRED (300-400) LINEAL FEET OF FOUR(4) INCH WIDE STRIPES (OR TO MFG. SPECIFICATION). APPLY MARKING PAINT IN DRY WEATHER WHEN PAVEMENT AND ATMOSPHERIC TEMPERATURES ARE FIFTY(50) DEGREES F. OR ABOVE (OR MFG. SPECIFICATION) AND ARE ANTICIPATED TO REMAIN ABOVE FIFTY(50) DEGREES F. FOR FOUR(4) HOURS AFTER COMPLETING APPLICATION.

NORTH

0 10 20 30

Scale: 1"= 20'

Tanner Consulting

Benchmark

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Geotech Pavement Recommendation

TAKEN FROM SUBSURFACE EXPLORATION REPORT FOR BROKEN ARROW DEVELOPMENT, LEINBACH COMPANY, BY BELONGIA CONSULTANTS, INC., PROJECT NO. 1125049, DATED AUGUST 9, 2012.

	HEAVY-DUTY	LIGHT-DUTY
PAVEMENT SECTION I (Asphaltic Concrete Over Aggregate Base Over Treated or Select Fill Subgrade)	1.5" Type "C"* 3.5" Type "A"* 6.0" Aggregate Base* 8.0" Treated Subgrade* or 10.0" Select Fill	1.5" Type "C"* 2.0" Type "A"* 6.0" Aggregate Base* 8.0" Treated Subgrade* or 10.0" Select Fill
PAVEMENT SECTION II (3,500 psi Air Entrained Portland Cement Concrete Over Treated or Select Fill Subgrade)	6.0" Concrete 8.0" Treated Subgrade* or 10.0" Select Fill	5.0" Concrete 8.0" Treated Subgrade* or 10.0" Select Fill

*Oklahoma Department of Transportation Standard Specifications

Because of the heavy concentrated wheel loads and frequent stopping and turning motions of trash collection and delivery trucks, we recommend that the pavements at the trash dumpster area consist of a minimum of 7 inches of reinforced concrete underlain by a treated or select fill subgrade.

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Broken Arrow, Oklahoma

PROJECT: 12060
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ATLAS PAGE NO: 000

PLAN SCALE: (H) 1"=20'
(V) N/A

Site Plan (North East)

6 OF 16

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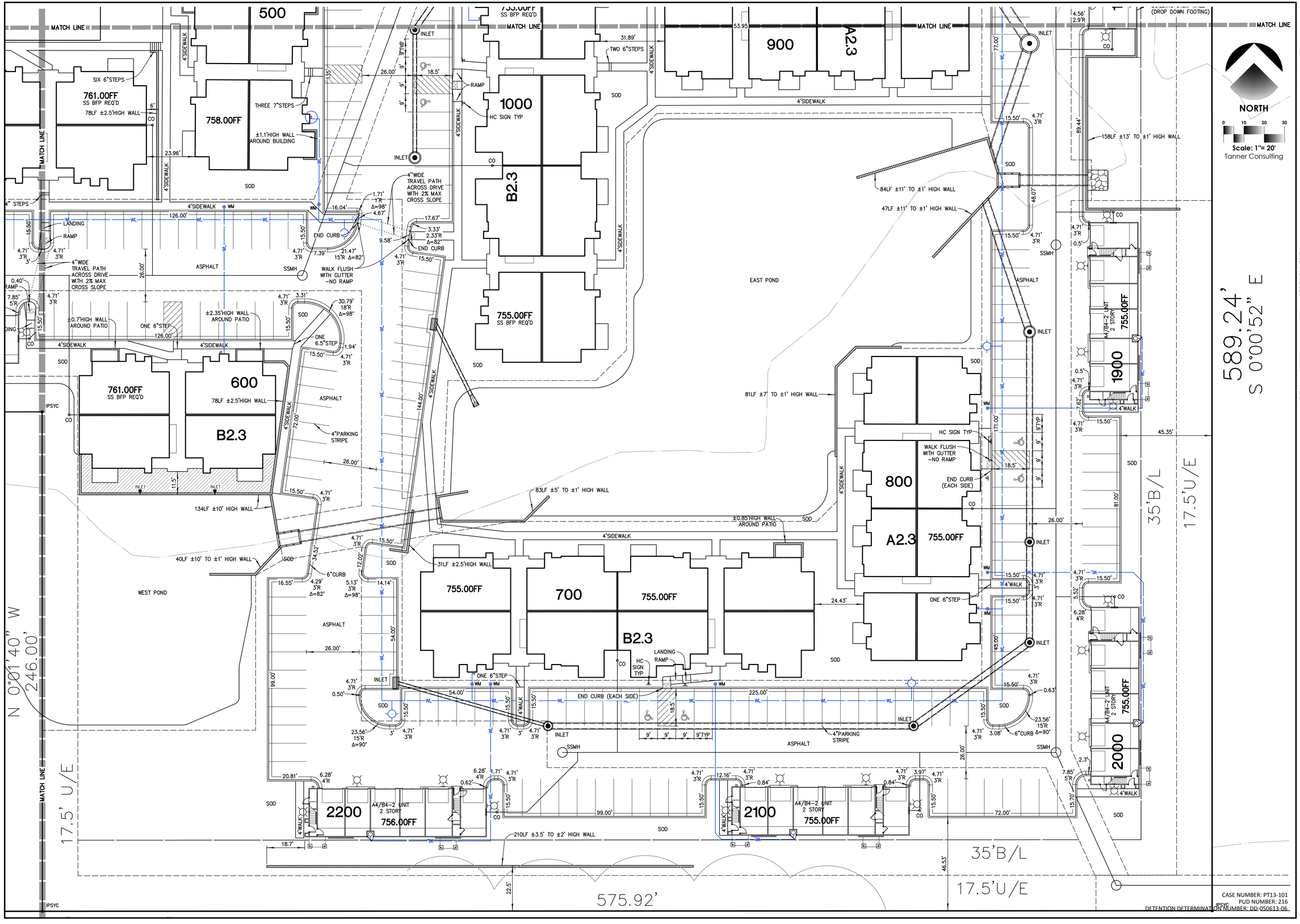

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(V)	N/A

Site PLan (South East)

7 OF 16

CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

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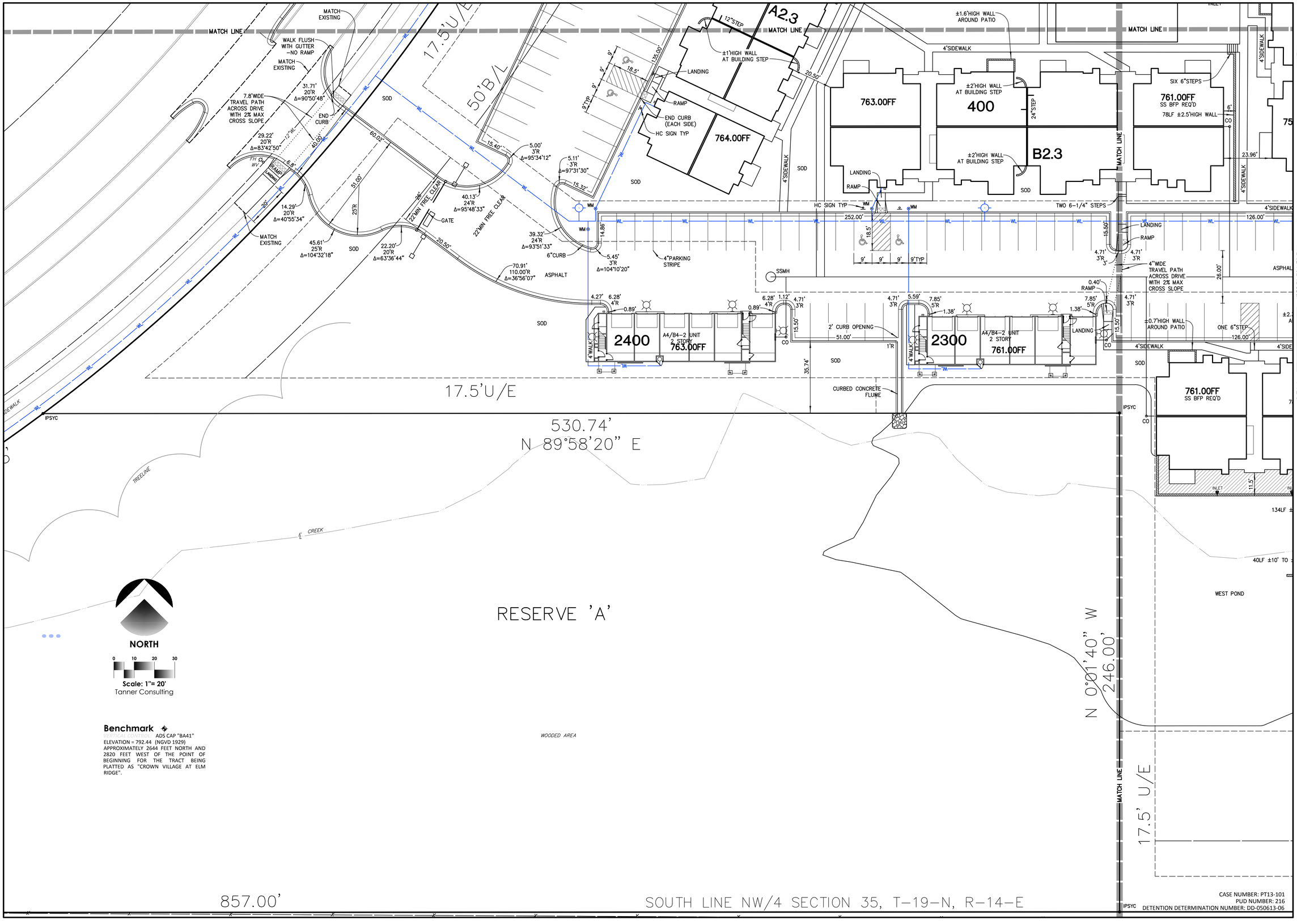

NORTH

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Scale: 1"= 20'
Tanner Consulting

Benchmark
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5323 SOUTH LEWIS AVENUE
TULSA, OKLAHOMA 74105
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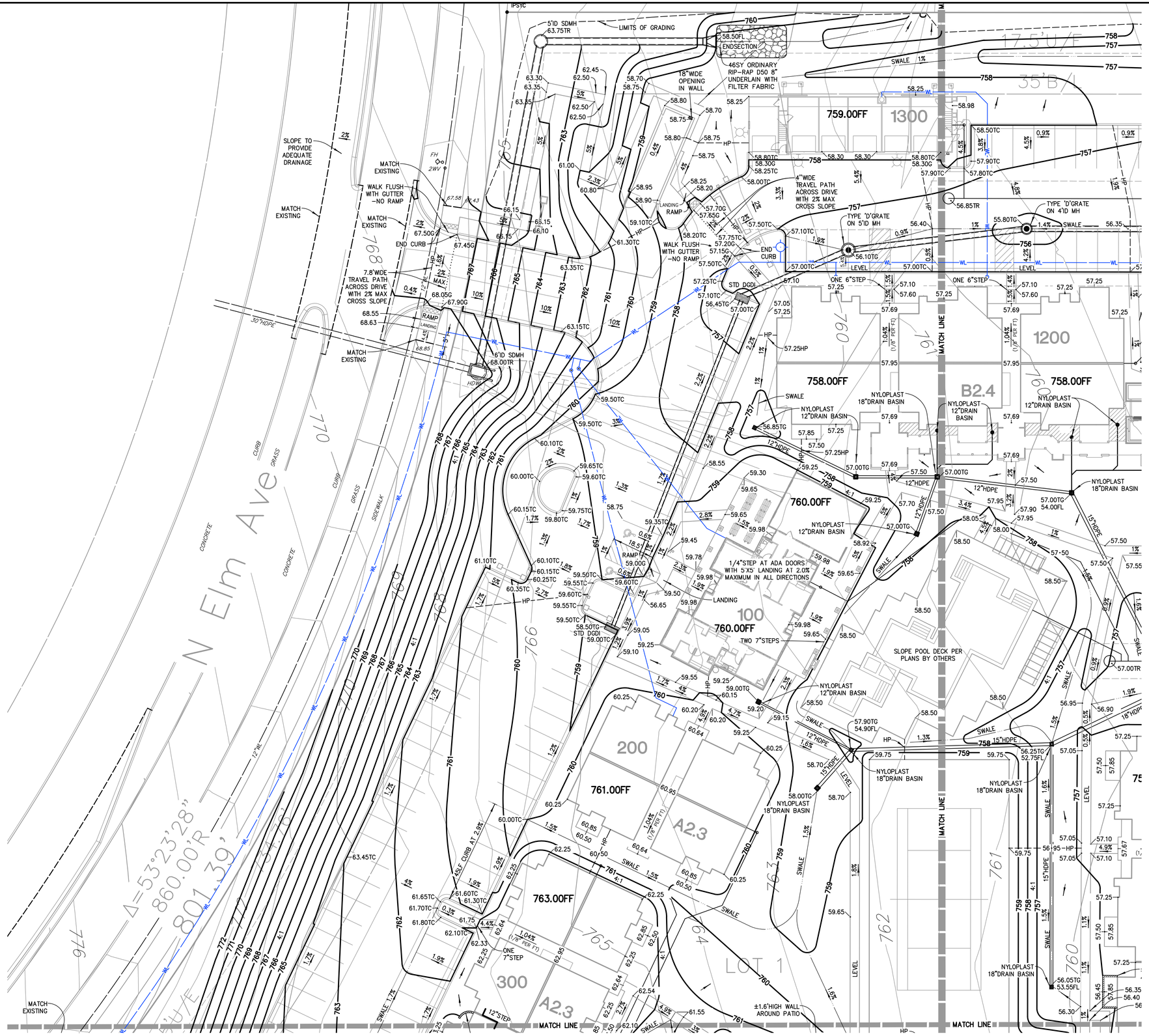
(V)	N/A

Site Plan (South West)

8 OF 16

P:\2012\12060\SHEETS\12060SDSP.DWG, SOUTH WEST, 7/30/2013 4:06:59 PM, DKETENBRINK, IN, TANNER CONSULTING, LLC, OK CA 2661 Exp 6/30/2015



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(V) N/A

Grading Plan (North West)

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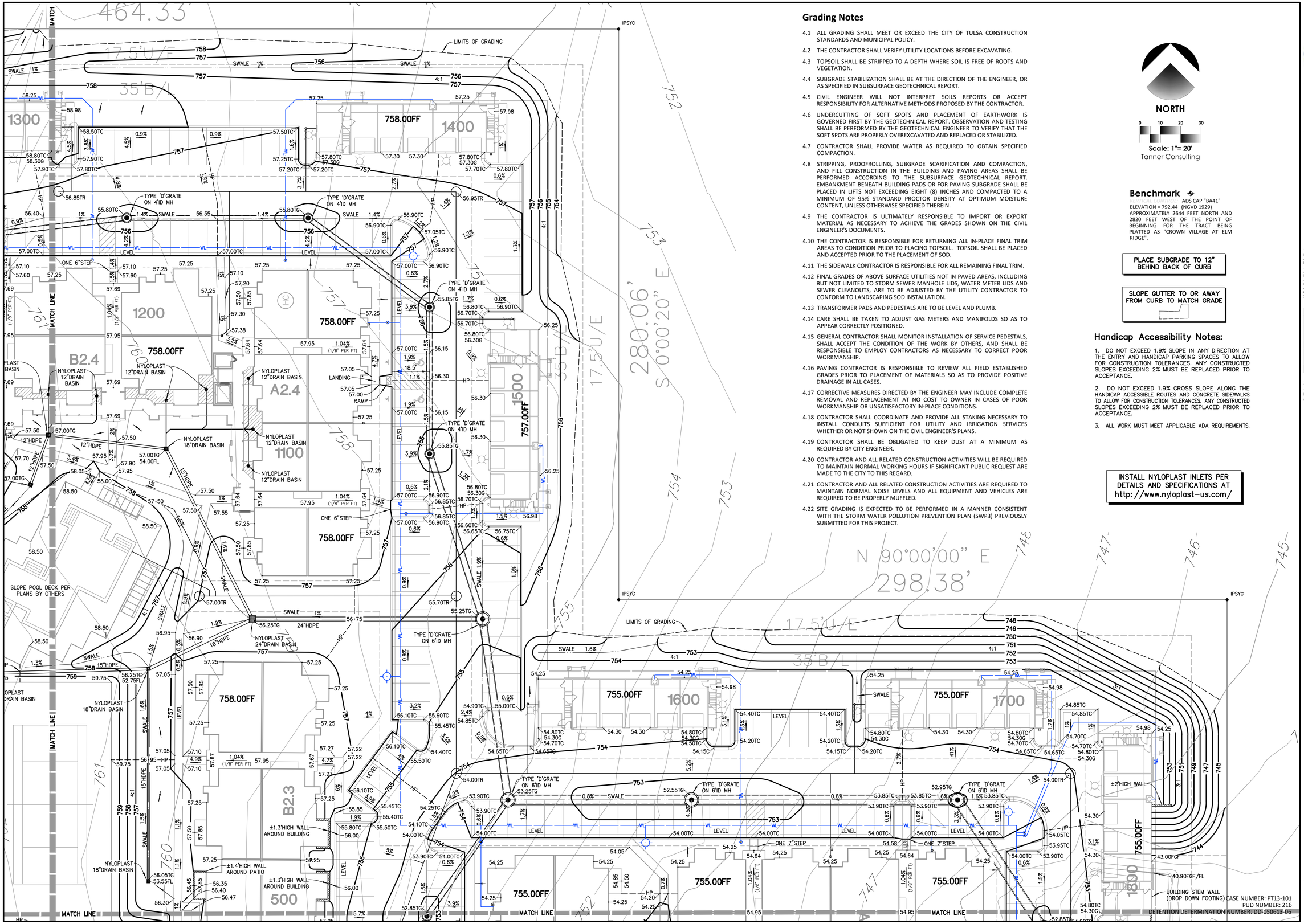

Grading Notes

4.1 ALL GRADING SHALL MEET OR EXCEED THE CITY OF TULSA CONSTRUCTION STANDARDS AND MUNICIPAL POLICY.

4.2 THE CONTRACTOR SHALL VERIFY UTILITY LOCATIONS BEFORE EXCAVATING.

4.3 TOPSOIL SHALL BE STRIPPED TO A DEPTH WHERE SOIL IS FREE OF ROOTS AND VEGETATION.

4.4 SUBGRADE STABILIZATION SHALL BE AT THE DIRECTION OF THE ENGINEER, OR AS SPECIFIED IN SUBSURFACE GEOTECHNICAL REPORT.

4.5 CIVIL ENGINEER WILL NOT INTERPRET SOILS REPORTS OR ACCEPT RESPONSIBILITY FOR ALTERNATIVE METHODS PROPOSED BY THE CONTRACTOR.

4.6 UNDERCUTTING OF SOFT SPOTS AND PLACEMENT OF EARTHWORK IS GOVERNED FIRST BY THE GEOTECHNICAL REPORT. OBSERVATION AND TESTING SHALL BE PERFORMED BY THE GEOTECHNICAL ENGINEER TO VERIFY THAT THE SOFT SPOTS ARE PROPERLY OVEREXCAVATED AND REPLACED OR STABILIZED.

4.7 CONTRACTOR SHALL PROVIDE WATER AS REQUIRED TO OBTAIN SPECIFIED COMPACTION.

4.8 STRIPPING, PROOFROLLING, SUBGRADE SCARIFICATION AND COMPACTION, AND FILL CONSTRUCTION IN THE BUILDING AND PAVING AREAS SHALL BE PERFORMED ACCORDING TO THE SUBSURFACE GEOTECHNICAL REPORT. EMBANKMENT BENEATH BUILDING PADS OR FOR PAVING SUBGRADE SHALL BE PLACED IN LIFTS NOT EXCEEDING EIGHT (8) INCHES AND COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY AT OPTIMUM MOISTURE CONTENT, UNLESS OTHERWISE SPECIFIED THEREIN.

4.9 THE CONTRACTOR IS ULTIMATELY RESPONSIBLE TO IMPORT OR EXPORT MATERIAL AS NECESSARY TO ACHIEVE THE GRADES SHOWN ON THE CIVIL ENGINEER'S DOCUMENTS.

4.10 THE CONTRACTOR IS RESPONSIBLE FOR RETURNING ALL IN-PLACE FINAL TRIM AREAS TO CONDITION PRIOR TO PLACING TOPSOIL. TOPSOIL SHALL BE PLACED AND ACCEPTED PRIOR TO THE PLACEMENT OF SOD.

4.11 THE SIDEWALK CONTRACTOR IS RESPONSIBLE FOR ALL REMAINING FINAL TRIM.

4.12 FINAL GRADES OF ABOVE SURFACE UTILITIES NOT IN PAVED AREAS, INCLUDING BUT NOT LIMITED TO STORM SEWER MANHOLE LIDS, WATER METER LIDS AND SEWER CLEANOUTS, ARE TO BE ADJUSTED BY THE UTILITY CONTRACTOR TO CONFORM TO LANDSCAPING SOD INSTALLATION.

4.13 TRANSFORMER PADS AND PEDESTALS ARE TO BE LEVEL AND PLUMB.

4.14 CARE SHALL BE TAKEN TO ADJUST GAS METERS AND MANIFOLDS SO AS TO APPEAR CORRECTLY POSITIONED.

4.15 GENERAL CONTRACTOR SHALL MONITOR INSTALLATION OF SERVICE PEDESTALS, SHALL ACCEPT THE CONDITION OF THE WORK BY OTHERS, AND SHALL BE RESPONSIBLE TO EMPLOY CONTRACTORS AS NECESSARY TO CORRECT POOR WORKMANSHIP.

4.16 PAVING CONTRACTOR IS RESPONSIBLE TO REVIEW ALL FIELD ESTABLISHED GRADES PRIOR TO PLACEMENT OF MATERIALS SO AS TO PROVIDE POSITIVE DRAINAGE IN ALL CASES.

4.17 CORRECTIVE MEASURES DIRECTED BY THE ENGINEER MAY INCLUDE COMPLETE REMOVAL AND REPLACEMENT AT NO COST TO OWNER IN CASES OF POOR WORKMANSHIP OR UNSATISFACTORY IN-PLACE CONDITIONS.

4.18 CONTRACTOR SHALL COORDINATE AND PROVIDE ALL STAKING NECESSARY TO INSTALL CONDUITS SUFFICIENT FOR UTILITY AND IRRIGATION SERVICES WHETHER OR NOT SHOWN ON THE CIVIL ENGINEER'S PLANS.

4.19 CONTRACTOR SHALL BE OBLIGATED TO KEEP DUST AT A MINIMUM AS REQUIRED BY CITY ENGINEER.

4.20 CONTRACTOR AND ALL RELATED CONSTRUCTION ACTIVITIES WILL BE REQUIRED TO MAINTAIN NORMAL WORKING HOURS IF SIGNIFICANT PUBLIC REQUEST ARE MADE TO THE CITY TO THIS REGARD.

4.21 CONTRACTOR AND ALL RELATED CONSTRUCTION ACTIVITIES ARE REQUIRED TO MAINTAIN NORMAL NOISE LEVELS AND ALL EQUIPMENT AND VEHICLES ARE REQUIRED TO BE PROPERLY MUFFLED.

4.22 SITE GRADING IS EXPECTED TO BE PERFORMED IN A MANNER CONSISTENT WITH THE STORM WATER POLLUTION PREVENTION PLAN (SWP3) PREVIOUSLY SUBMITTED FOR THIS PROJECT.

NORTH

0 10 20 30

Scale: 1"= 20'

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Benchmark

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PLACE SUBGRADE TO 12" BEHIND BACK OF CURB

SLOPE GUTTER TO OR AWAY FROM CURB TO MATCH GRADE

Handicap Accessibility Notes:

1. DO NOT EXCEED 1.9% SLOPE IN ANY DIRECTION AT THE ENTRY AND HANDICAP PARKING SPACES TO ALLOW FOR CONSTRUCTION TOLERANCES. ANY CONSTRUCTED SLOPES EXCEEDING 2% MUST BE REPLACED PRIOR TO ACCEPTANCE.

2. DO NOT EXCEED 1.9% CROSS SLOPE ALONG THE HANDICAP ACCESSIBLE ROUTES AND CONCRETE SIDEWALKS TO ALLOW FOR CONSTRUCTION TOLERANCES. ANY CONSTRUCTED SLOPES EXCEEDING 2% MUST BE REPLACED PRIOR TO ACCEPTANCE.

3. ALL WORK MUST MEET APPLICABLE ADA REQUIREMENTS.

INSTALL NYLOPLAST INLETS PER DETAILS AND SPECIFICATIONS AT http://www.nyloplast-us.com/

REGISTERED PROFESSIONAL ENGINEER
DAN EDWIN TANNER
19090
OKLAHOMA
7/30/2013

Tanner Consulting, LLC
Land Planning
Civil Engineering
Land Surveying
Architecture
Interior Design

5323 SOUTH LEWIS AVENUE
TULSA, OKLAHOMA 74105
PHONE (918)745-9929
FAX (918)745-9969
www.tannerconsulting-llc.com

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MILESTONE	DATE
PLOT DATE: 7/30/13	

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARDS AND SPEC'S (INCLUDING O.D.O.T. 2009 EDITION).

Crown Village at Elm Ridge

Part of the NW/4, Section 35, T-19-N, R-14-E

Broken Arrow, Oklahoma

PROJECT: 12060
ISSUE DATE: 7/30/2013
ATLAS PAGE NO: 000

PLAN SCALE: (H) 1"=20'
(V) N/A

Grading Plan (North East)

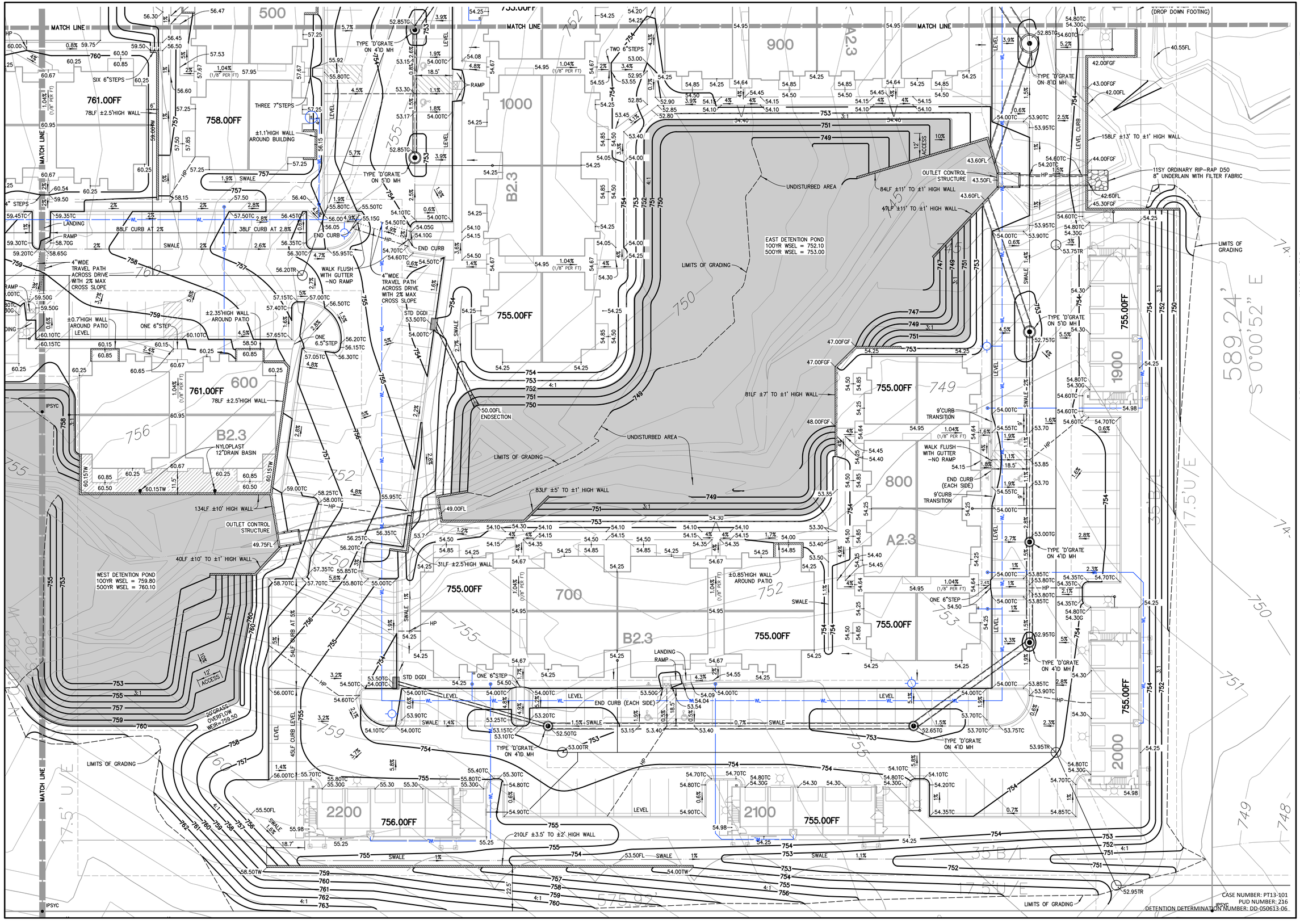
10 OF 16

DETENTION DETERMINATION NUMBER: DD-050613-06

PUD NUMBER: 216

CASE NUMBER: PT13-101

P:\2012\12060\SHEETS\12060SGN.DWG, NORTH EAST, 7/30/2013 4:07:05 PM, DKETENBRINK, IN, TANNER CONSULTING, LLC, OK CA 2661 Exp 6/30/2015



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Crown Village at Elm Ridge

Part of the NW/4, Section 35, T-19-N, R-14-E
Broken Arrow, Oklahoma

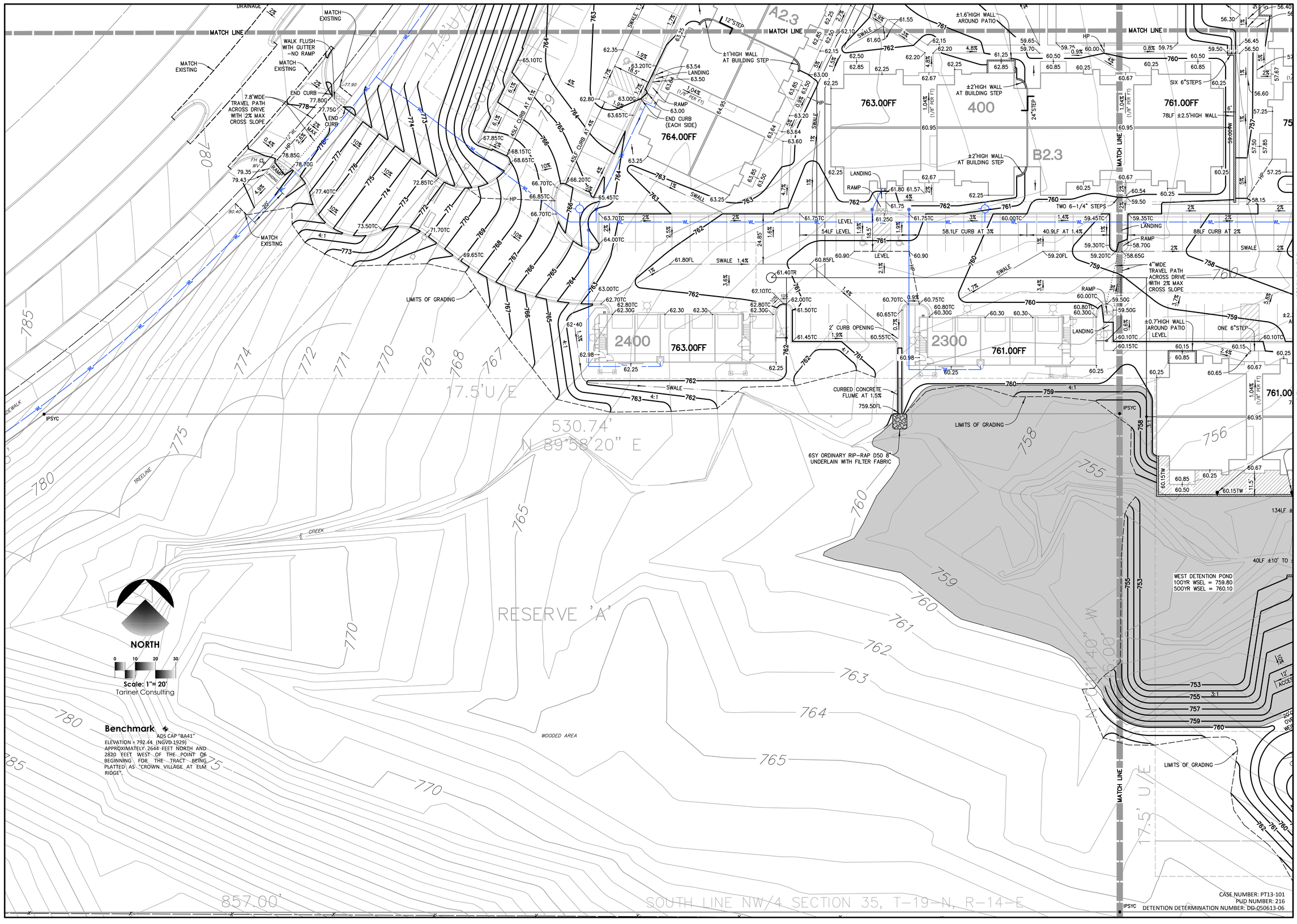
PROJECT:	12060
ISSUE DATE:	7/30/2013
ATLAS PAGE NO:	000
PLAN SCALE: (H)	1"=20'
(V)	N/A

Grading Plan (South East)

11 OF 16

CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

P:\2012\12060\SHEETS\12060GRADING, South East, 7/30/2013 4:07:25 PM, DKETENBRINK, In, TANNER CONSULTING, LLC., OK CA 2661 Exp 6/30/2015



DANIEL EDWIN TANNER
19090
REGISTERED PROFESSIONAL ENGINEER
OKLAHOMA
7/30/2013

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Architecture
Interior Design

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Crown Village at Elm Ridge

Part of the NW/4, Section 35, T-19-N, R-14-E

Broken Arrow, Oklahoma

PROJECT: 12060
ISSUE DATE: 7/30/2013
ATLAS PAGE NO: 000

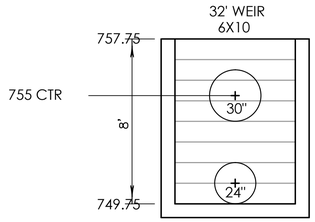
PLAN SCALE: (H) 1"=20'
(V) N/A

Grading Plan (South West)

CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

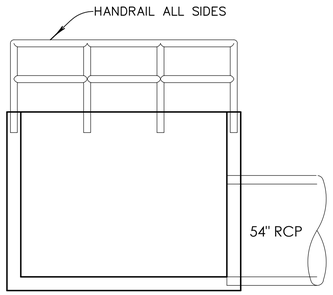
12 OF 16

P:\2012\12060\SHEETS\12060SGR.dwg, South West, 7/30/2013 4:07:34 PM, DKETENBRINK, in: TANNER CONSULTING, LLC, OK CA 2661 Exp 6/30/2015

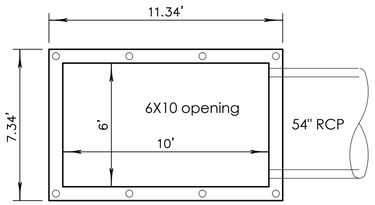


Orifice Control

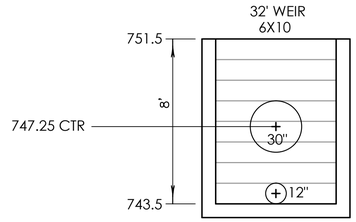
Front



Side

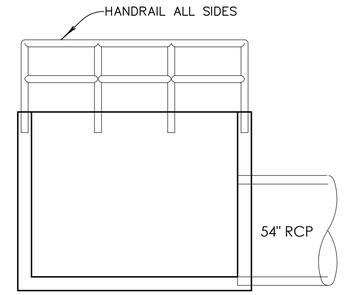


Plan



Orifice Control

Front



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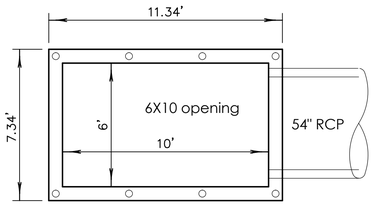


Plan

A West Pond Concrete Outlet Structure

Scale: NONE

B East Pond Concrete Outlet Structure

Scale: NONE

Storm Sewer Notes

5.1 ALL STORM SEWER SYSTEM CONSTRUCTION INSTALLATION SHALL MEET OR EXCEED THE CITY CONSTRUCTION STANDARDS AND MUNICIPAL POLICY.

5.2 THE PROJECT RESPONSIBLE CONTRACTOR AND ANY OTHER SUB-CONTRACTORS UNDER SEPARATE CONTRACT, IS/ARE REQUIRED TO HAVE A PRE-CONSTRUCTION MEETING WITH CITY STAFF. SUCH A MEETING IS REQUIRED BEFORE ANY INFRASTRUCTURE CONSTRUCTION IS PERFORMED. SHOULD THE RESPONSIBLE CONTRACTOR(S) REPRESENTATIVE FAIL TO PARTICIPATE WITHIN A MUTUALLY SCHEDULED PRE-CONSTRUCTION MEETING, ALL CONSTRUCTION ACTIVITIES SHALL BE IMMEDIATELY TERMINATED INDEFINITELY BY THE CITY. SUCH MEETINGS WILL ALSO BE MANDATORY, UPON CITY'S REQUEST, DURING THE CONSTRUCTION PROCESS, IF NECESSARY.

5.3 ALL STORM SEWER AND DRAINAGE CONSTRUCTION SHALL BE INSPECTED BY THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT UTILITY INSPECTORS, IN ACCORDANCE WITH CITY POLICY.

5.4 THE CONTRACTOR SHALL VERIFY UTILITY LOCATIONS BEFORE EXCAVATING.

5.5 THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT AT LEAST 24 HOURS PRIOR TO START OF CONSTRUCTION.

5.6 MANHOLES AND APPURTENANCE DETAILS SHALL BE APPROVED BY THE CITY ENGINEER BEFORE CONSTRUCTION IS STARTED.

5.7 ALL STORM SEWER PIPE SHALL BE REINFORCED CONCRETE PIPE CONFORMING TO ASTM C-76 CLASS III, WALL "B", UNLESS OTHERWISE NOTED. OMNI-FLEX JOINTS SHALL BE REQUIRED ON ALL REINFORCED CONCRETE PIPE.

5.8 ALL PRIVATE HDPE STORM SEWER PIPE SHALL BE ADS N-12, OR EQUIVALENT, CORRUGATED, SMOOTH INTERIOR PLASTIC PIPE.

5.9 STORM SEWER BEDDING, BACKFILL, AND COMPACTION SHALL BE IN ACCORDANCE WITH CITY STANDARD DRAWINGS.

5.10 ALL STORM SEWER LINES NOT UNDER PAVING SHALL BE LAID IN TYPE A AGGREGATE BEDDING TO A MINIMUM DEPTH OF 12 INCHES ABOVE THE TOP OF PIPE. THE TRENCH MAY BE BACKFILLED WITH COMPACTED SOIL UPON APPROVAL BY THE INSPECTOR.

5.11 STORM SEWER LINES LOCATED UNDER PAVED STREETS SHALL BE LAID IN TYPE A AGGREGATE BEDDING AND THE TRENCH COMPLETELY FILLED TO SUBGRADE WITH TYPE A AGGREGATE COMPACTED TO 95% STANDARD PROCTOR DENSITY.

5.12 PIPE BACKFILL SHALL BE PLACED IN LIFTS NOT EXCEEDING EIGHT (8) INCHES, AND COMPACTED BY VIBRATORY PLATE OR OTHER METHOD APPROVED BY THE ENGINEER.

5.13 PAVING SUBGRADE SHALL BE RESTORED TO PROPER GRADE (+ OR - 0.1 FT) AND DENSITY AFTER PIPE IS BACKFILLED.

5.14 ALL DROP INLETS SHALL HAVE CAST IRON HOODS.

5.15 ALL CULVERTS SHALL BE FURNISHED WITH HEADWALLS OR END SECTIONS ON BOTH ENDS, AND AN APRON ON THE DOWNSTREAM SIDE.

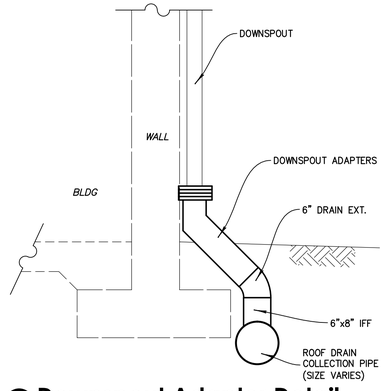
5.16 CONSTRUCTION OF STORM SEWER STRUCTURES SHOULD INCLUDE A TEMPORARY DRAIN HOLE AT A POINT TWELVE (12) INCHES BELOW PAVING SUBGRADE TO PROMOTE DRAINAGE DURING CONSTRUCTION. PAVING AND STORM SEWER CONTRACTORS SHALL COORDINATE THE PLUGGING OF THE TEMPORARY HOLES.

5.17 ALL PRECAST MANHOLES SHALL HAVE ADJUSTABLE TOP RIMS PROVIDING SIX (6) INCHES, PLUS OR MINUS, FOR ADJUSTMENT TO FINAL GRADES. ELEVATIONS SHOWN ON PLANS MAY BE ADJUSTED WHILE THE WORK IS IN PROGRESS TO CONFORM TO FINAL IN-PLACE PAVING AND LANDSCAPE GRADES.

5.18 THE UTILITY CONTRACTOR ASSUMES THE RISK OF ORDERING PRECAST CONCRETE COMPONENTS PRIOR TO FIELD STAKING AND REVIEW OF FIELD CONDITIONS AT THE TIME OF CONSTRUCTION.

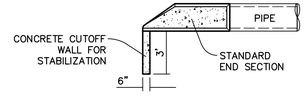
5.19 VEGETATIVE COVER SHALL BE ESTABLISHED ON ALL DISTURBED AREAS AS SOON AS THE WORK IS COMPLETED.

5.20 ROAD CLOSURES MUST BE COORDINATED A MINIMUM OF TWENTY FOUR (24) HOURS IN ADVANCE WITH JENKS PUBLIC WORKS DEPARTMENT AND JENKS POLICE DEPARTMENT. ROADS WILL NOT BE CLOSED FOR OVER EIGHT (8) HOURS WITHOUT WRITTEN PERMISSION FROM THE PUBLIC WORKS DIRECTOR.



C Downspout Adapter Detail

Scale: NONE



D Cutoff Wall Detail

Scale: NONE

*** CONTRACTOR IS RESPONSIBLE TO UNCOVER ANY UTILITY CONNECTION POINTS BEFORE CONSTRUCTING NEW UTILITIES.**

CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

DANIEL EDWIN TANNER
13090
OKLAHOMA
7.30.2013

Tanner Consulting, LLC
Land Planning
Civil Engineering
Land Surveying
Architecture
Interior Design

5323 SOUTH LEWIS AVENUE
TULSA, OKLAHOMA 74105
PHONE (918)745-9929
FAX (918)745-9969
www.tannerconsulting-llc.com

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Crown Village at Elm Ridge

Part of the NW/4, Section 35, T-19-N, R-14-E

Broken Arrow, Oklahoma

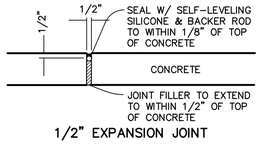
PROJECT: 12060
ISSUE DATE: 7/30/2013
ATLAS PAGE NO: 000

PLAN SCALE: (H) N/A
(V) N/A

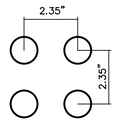
Storm Sewer Details

13 OF 16

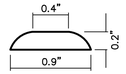
P:\2012\12060\SHEETS\12060SD01.DWG, I, 7/30/2013 4:07:47 PM, DKETENBRINK, III, TANNER CONSULTING, LLC, OK CA 2661 Exp 6/30/2015



1/2" EXPANSION JOINT



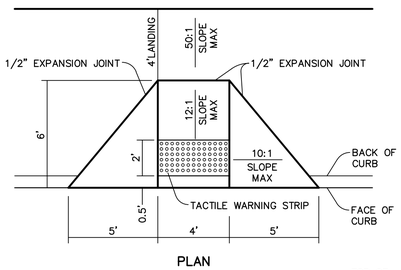
TRUNCATED DOMES SPACING AT TACTILE WARNING STRIP



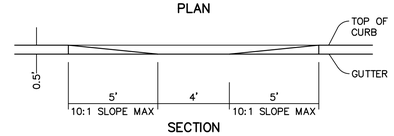
TRUNCATED DOMES SECTION AT TACTILE WARNING STRIP

M Tactile Warning Detail

Scale: NONE



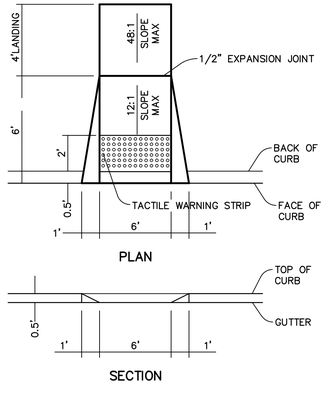
PLAN



SECTION

N Typical Curb Ramp 1

Scale: NONE

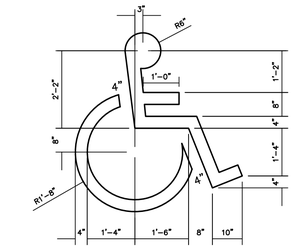


PLAN

SECTION

O Typical Curb Ramp 2

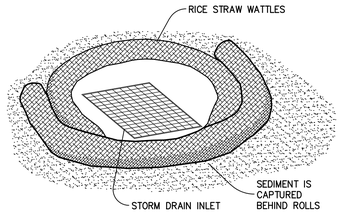
Scale: NONE



NOTE:
PAINT 2" WHITE OUTLINE AROUND HANDICAP SYMBOL AND BLUE BACKGROUND FOR CONCRETE PARKING LOTS ONLY.

J HC Pavement Marking Symbol

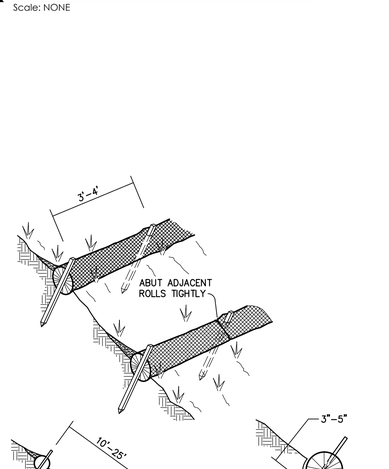
Scale: NONE



1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. FIBER ROLLS SHOULD BE INSPECTED AFTER EVERY SIGNIFICANT STORM EVENT TO CLEAR AND DISPOSE OF SEDIMENT AND DEBRIS.

K Inlet Control Filter

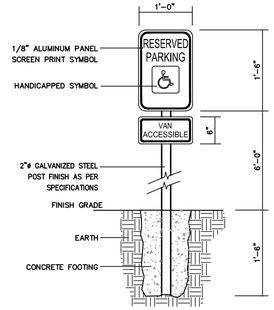
Scale: NONE



1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. STRAW WATTLE INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3"-5" DEEP, DUG ON CONTOUR.
3. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.

L Straw Wattle Detail

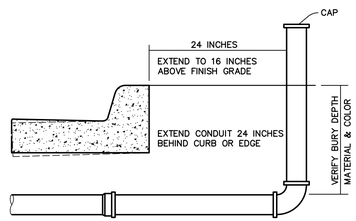
Scale: NONE



NOTE:
HANDICAPPED PARKING SIGNS SHALL:
1. BE CENTERED IN THE HANDICAPPED SPACE.
2. HAVE THE INTERNATIONAL SYMBOL OF ACCESSIBILITY ON THEM ONE OF THE SIGNS SHALL HAVE THE STATEMENT "VAN ACCESSIBLE" BELOW THE INTERNATIONAL SYMBOL OF ACCESSIBILITY.
3. SIGN TO BE MINIMUM OF 60 INCHES ABOVE SIDEWALK.

E HC Parking Sign Detail

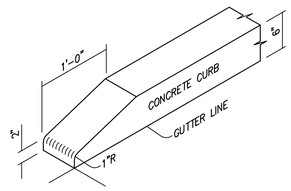
Scale: NONE



ELECTRICAL CONDUIT FOR PSO TO BE 4" GRAY SCHEDULE 40 PVC.
TELEPHONE CONDUIT FOR SWB TO BE 4" WHITE SDR 35 PVC.
CABLE TELEVISION CONDUIT FOR TCI TO BE 4" WHITE SDR 35 PVC.

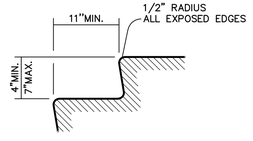
F Conduit Under Paving Detail

Scale: NONE



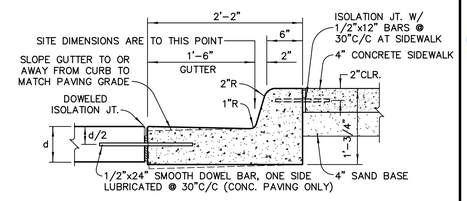
G END CURB Detail

Scale: NONE



H Exterior Step Detail

Scale: NONE

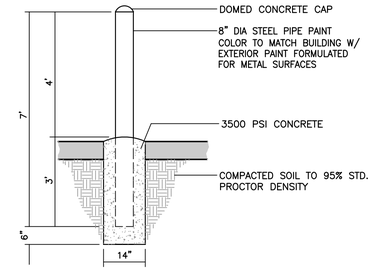


NOTE: SAWCUT CONTRACTION JOINTS AT 15 FT. MAX SPACING. CONSTRUCT DOWELED ISOLATION JOINTS AT ALL POINTS OF CURVE NOT TO EXCEED 90 FT. MAX. SPACING.

CONCRETE FOR CURB & GUTTER SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 3500 PSI AND SHALL BE AIR-ENTRAINED AT SIX PERCENT (6%) ±1%.

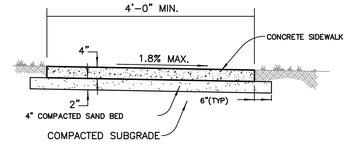
A Integral Curb & Gutter Detail

Scale: NONE



B Typical Bollard Detail

Scale: NONE

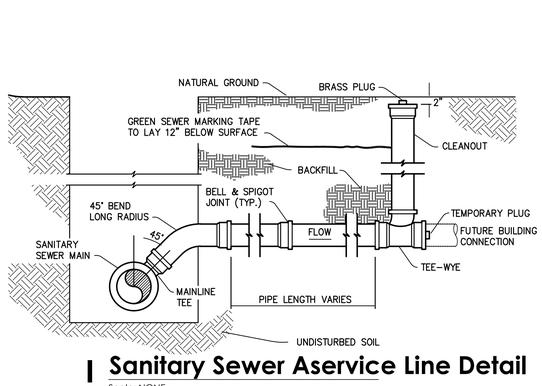


MAXIMUM SPACING FOR EXPANSION JOINTS SHALL BE 40 FEET.

CONCRETE FOR SIDEWALK SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI AND SHALL BE AIR-ENTRAINED AT SIX PERCENT (6%) ±1%.

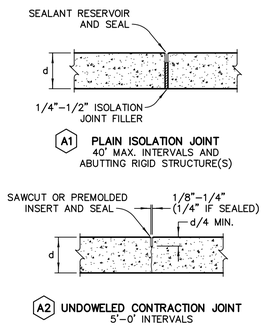
C Concrete Sidewalk Detail

Scale: NONE



I Sanitary Sewer Aservice Line Detail

Scale: NONE



D Sidewalk Joint Details

Scale: NONE

CERTIFIED PROFESSIONAL ENGINEER
DAN EDWIN TANNER
19090
OKLAHOMA
7/30/2013

Tanner Consulting, LLC
Land Planning
Civil Engineering
Land Surveying
Architecture
Interior Design

5323 SOUTH LEWIS AVENUE
TULSA, OKLAHOMA 74105
PHONE (918)745-9929
FAX (918)745-9969
www.tannerconsulting-llc.com

CERTIFICATE OF AUTHORIZATION NO. CA 2661 EXP. 6/30/2015

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MILESTONE	DATE
PLOT DATE: 7/30/13	

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARDS AND SPEC'S (INCLUDING O.D.O.T. 2009 EDITION).

Crown Village at Elm Ridge

Part of the NW/4, Section 35, T-19-N, R-14-E

Broken Arrow, Oklahoma

PROJECT: 12060
ISSUE DATE: 7/30/2013
ATLAS PAGE NO: 000

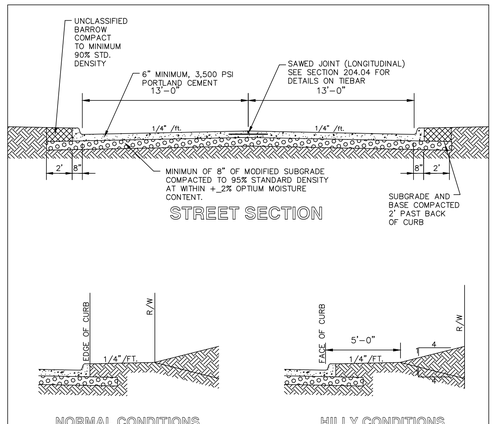
PLAN SCALE: (H) N/A
(V) N/A

Details And Notes

14 OF 16

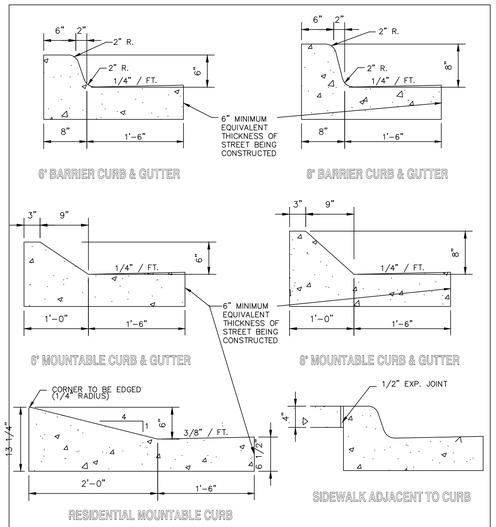
CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

P:\2012\12060\SHEETS\12060SDD1.dwg, 2, 7/30/2013 4:07:54 PM, DKETENBRINK, I:\, TANNER CONSULTING, LLC, OK CA 2661 Exp 6/30/2015



CONCRETE STREET SECTION W/ CURB AND GUTTER

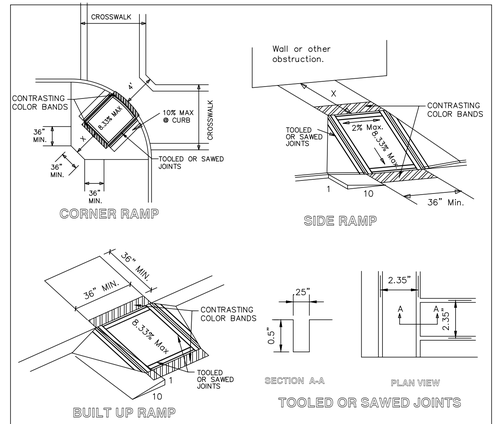
CITY OF BROKEN ARROW		STANDARD DRAWING: STD ST 03	
		LAST REVISION DATE: 8/01/99	
DRAWN BY: ADN	CHECKED BY: DLW	APPROVED: MDK	DATE: 8/01/99



NOTE:
SEE SECTION 204.05 FOR DETAIL ON JOINTS AND TIEBARS

CURB AND GUTTER DETAIL

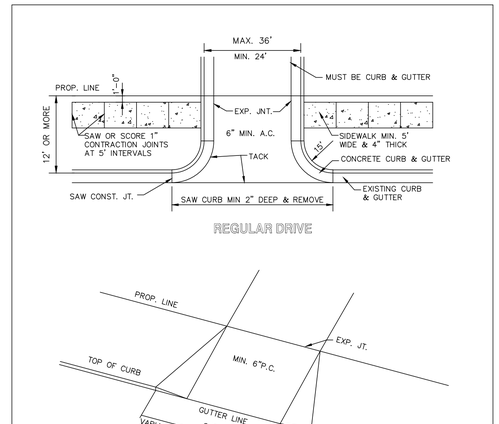
CITY OF BROKEN ARROW		STANDARD DRAWING: STD ST 05	
		LAST REVISION DATE: 8/01/99	
DRAWN BY: ADN	CHECKED BY: DLW	APPROVED: MDK	DATE: 8/01/99



NOTES:
1. DETECTABLE WARNING, CONTRASTING COLOR BANDS, SHALL CONTRAST VISUALLY WITH ADJOINING SURFACE, EITHER LIGHT ON DARK, OR DARK ON LIGHT.
2. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.
3. CROSS SLOPE OF LANDING AREA DOES NOT EXCEED 2% IN ANY DIRECTION.
4. WHEN X IS LESS THAN 48", THE SLOPE OF THE FANNED OR FLARED SIDES MUST NOT EXCEED 1:12 (8.33%)
5. BUILT UP RAMPS ARE NOT ALLOWED TO ENCROACH INTO LOADING/UNLOADING ZONES PARKING SPACES OR VEHICULAR TRAFFIC LANES.

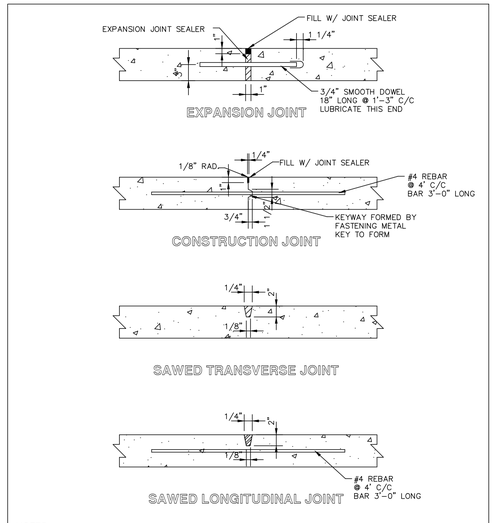
SIDEWALK & WHEELCHAIR RAMP DETAIL

CITY OF BROKEN ARROW		STANDARD DRAWING: STD ST 06	
		LAST REVISION DATE: 8/01/99	
DRAWN BY: ADN	CHECKED BY: DLW	APPROVED: MDK	DATE: 8/01/99



COMMERCIAL DRIVEWAY

CITY OF BROKEN ARROW		STANDARD DRAWING: STD ST 19	
		LAST REVISION DATE: 8/01/99	
DRAWN BY: ADN	CHECKED BY: DLW	APPROVED: MDK	DATE: 8/01/99



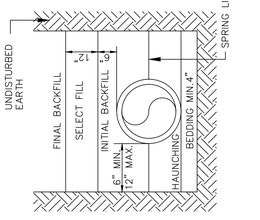
NOTES:
1. SEE SECTION 204.04 FOR JOINT SPACING AND TIEBAR REQUIREMENTS.
2. SAWED JOINTS SHALL BE SEALED AS REQUIRED IN SECTION 200.

STANDARD CONCRETE PAVEMENT JOINTS

CITY OF BROKEN ARROW		STANDARD DRAWING: STD ST 12	
		LAST REVISION DATE: 8/01/99	
DRAWN BY: ADN	CHECKED BY: DLW	APPROVED: MDK	DATE: 8/01/99

PAVED AREAS		CONCRETE
HDPE	STEEL	
FLOWABLE FILL	FLOWABLE FILL, OR TYPE A ROCK	FLOWABLE FILL, OR TYPE A ROCK
FLOWABLE FILL	FLOWABLE TYPE A ROCK	FLOWABLE TYPE A ROCK
FLOWABLE FILL	FLOWABLE FILL, OR TYPE A ROCK	FLOWABLE FILL, OR TYPE A ROCK
3/4" WASHED ROCK	3/4" WASHED ROCK	3/4" WASHED ROCK
1/8" CHIPS	1/8" CHIPS	1/8" CHIPS

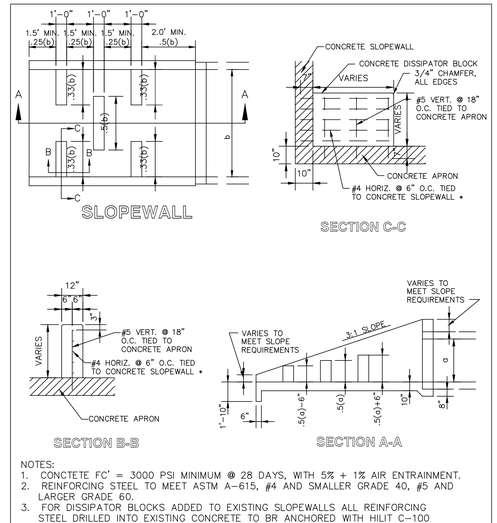
NON-PAVED AREAS		CONCRETE
HDPE	STEEL	
EXCAVATED MATERIAL	EXCAVATED MATERIAL	EXCAVATED MATERIAL
SELECT FILL	SELECT FILL	SELECT FILL
SAND	SAND	SAND
3/4" WASHED ROCK	3/4" WASHED ROCK	SAND
3/8" CHIPS OR 3/4" WASHED ROCK	3/8" CHIPS OR 3/4" WASHED ROCK	3/8" CHIPS OR 3/4" WASHED ROCK



NOTES:
1. SELECT FILL CONSISTS OF EXCAVATED MATERIALS CONTAINING NO ROCKS LARGER THAN 2 INCHES.
2. BEDDING REQUIRED FOR ALL STORM SEWER REPLACEMENT PROJECTS, IN ROCK EXCAVATION, AND FOR LOCATIONS WITH UNSTABLE INSTALLATION.
3. COMPACTION REQUIREMENTS:
   a. NON-PAVED AREAS: 90% MAXIMUM STANDARD PROCTOR DENSITY FOR COHESIONLESS SOILS AND 85% FOR COHESIVE SOILS.
   b. PAVED AREAS: 95% MAXIMUM STANDARD PROCTOR DENSITY FOR COHESIONLESS SOILS.
4. FLOWABLE FILL MAY BE SUBSTITUTED FOR ALL MATERIALS IN ROAD CROSSING.

STORM SEWER PIPE BEDDING DETAIL

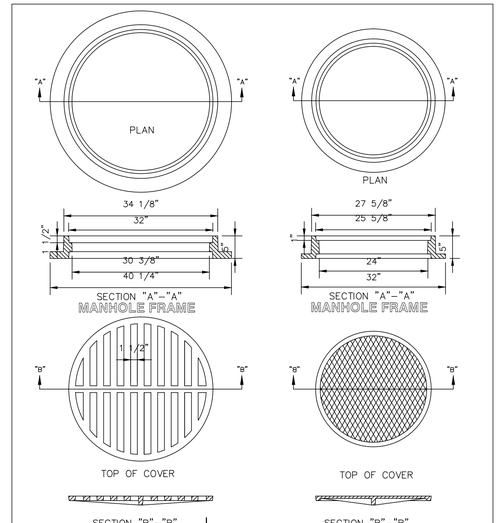
CITY OF BROKEN ARROW	STANDARD DRAWING: STD ST 01	
	LAST REVISION DATE: 8/01/99	
DRAWN BY: ADN	CHECKED BY: DLW	APPROVED: MDK DATE: 8/01/99



NOTES:
1. CONCTETE FC' = 3000 PSI MINIMUM @ 28 DAYS, WITH 5% + 1% AIR ENTRAINMENT.
2. REINFORCING STEEL TO MEET ASTM A-615, #4 AND SMALLER GRADE 40, #5 AND LARGER GRADE 60.
3. FOR DISSIPATOR BLOCKS ADDED TO EXISTING SLOPEWALLS ALL REINFORCING STEEL DRILLED INTO EXISTING CONCRETE TO BR ANCHORED WITH HILIT C-100 ADHESIVE OR EQUAL.
4. SLOPEWALL AND HEADWALL TO BE CONSTRUCTED TO ODOT SPECIFICATIONS,
* ON ROW 2, CUT #4 HORIZ. BARS OFF 3" FROM EACH SIDE OF DISSIPATOR WALL.

SLOPEWALL WITH DISSIPATER DETAIL

CITY OF BROKEN ARROW		STANDARD DRAWING: STD ST26	
		LAST REVISION DATE: 8/01/99	
DRAWN BY| ADN	CHECKED BY: DLW	APPROVED: MDK	DATE: 8/01/99



STORM SEWER MANHOLE RING & LID

CITY OF BROKEN ARROW		STANDARD DRAWING: STD ST25	
		LAST REVISION DATE: 8/01/99	
DRAWN BY: ADN	CHECKED BY: DLW	APPROVED: MDK	DATE: 8/01/99

NOTED ON SET AS TYPE 'D' GRATE ON PRIVATE STORM SEWER SYSTEM

DANIEL EDWIN TANNER 13090 OKLAHOMA REGISTERED PROFESSIONAL ENGINEER
7-30-2013

Tanner Consulting, LLC
Land Planning
Civil Engineering
Land Surveying
Architecture
Interior Design

5323 SOUTH LEWIS AVENUE
TULSA, OKLAHOMA 74105
PHONE (918)745-9929
FAX (918)745-9969
www.tannerconsulting-llc.com

CERTIFICATE OF AUTHORIZATION NO.
CA 2661 EXP. 6/30/2015

BEFORE YOU DIG 811 OR 1-800-522-6543 CALL OKIE

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PLOT DATE: 7/30/13	

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Crown Village at Elm Ridge

Part of the NW/4, Section 35, T-19-N, R-14-E

Broken Arrow, Oklahoma

PROJECT: 12060
ISSUE DATE: 7/30/2013
ATLAS PAGE NO: 000

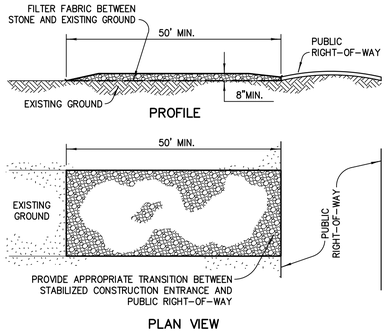
PLAN SCALE: (H) N/A
(V) N/A

Public Improvement Details

15 OF 16

CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

P:\12012\12060\SHEETS\12060SDDT.dwg, 3, 7/30/2013 4:07:59 PM, DKETENBRINK, II, TANNER CONSULTING, LLC, OK CA 2661 Exp 6/30/2015



1. STONE SIZE AASHTO DESIGNATION M43, SIZE NO.2 (2-1/2" TO 1-1/2"). USE CRUSHED STONE.
2. LENGTH – AS EFFECTIVE, BUT NOT LESS THAN 50 FEET.
3. THICKNESS – NOT LESS THAN EIGHT(8) INCHES.
4. WIDTH – NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
5. WASHING – WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATERCOURSE THROUGH USE OF SAND BAGS, GRAVEL, BOARDS OR OTHER APPROVED METHODS.
6. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY BY THE OWNER.

B Construction Entrance Detail

Scale: NONE

Key

INLET PROTECTION.
THE INLET'S STEEL GRATE WILL ACT THEREAFTER AS A PERMANENT SCREENED OUTFALL DEVICE.

NORTH

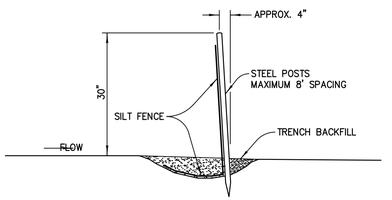
0 30 60 90

Scale: 1"= 60'

Tanner Consulting

Benchmark

ADS CAP "BA41"
ELEVATION = 792.44 (NGVD 1929)
APPROXIMATELY 2644 FEET NORTH AND 2820 FEET WEST OF THE POINT OF BEGINNING FOR THE TRACT BEING PLATTED AS "CROWN VILLAGE AT ELM RIDGE".



POSTS SHALL BE ANGLED SLIGHTLY TOWARD RUNOFF SOURCE.

THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN AND BACKFILLED.

THE TRENCH SHOULD BE 6" DEEP BY 3' TO 4' WIDE TO ALLOW SILT FENCE TO BE LAID IN AND BACKFILLED.

SILT FENCE SHALL BE FASTENED TO POSTS OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE POSTS.

INSPECTION SHALL BE FREQUENT & REPAIR OR REPLACEMENT PROMPT.

SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO IMPEDE STORMWATER FLOW.

TRAPPED SEDIMENT SHALL BE DISPOSED OF IN AN APPROVED MANNER AND LOCATION WHICH WILL NOT CONTRIBUTE TO ADDITIONAL SILTATION.

ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF 6" TO 9" AND DISPOSED OF AS IN NOTE 7 ABOVE.

A Silt Fence Detail

Scale: NONE

Erosion Control Notes

3.1 ALL EROSION CONTROL SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT CITY ENGINEERING AND CONSTRUCTION DEPARTMENT STANDARDS AND SPECIFICATIONS.

3.2 ALL EROSION CONTROL CONSTRUCTION SHALL BE INSPECTED BY THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT UTILITY INSPECTORS, IN ACCORDANCE WITH CITY POLICY.

3.3 EROSION CONTROL SHALL START WITH INITIAL CONSTRUCTION AND BE PRACTICED THROUGHOUT THE PROJECT.

3.4 SILT FENCES SHALL BE CONSTRUCTED ADJACENT TO ALL DRAINAGE-WAYS, AND IN ALL AREAS THAT WILL ERODE INTO THE STORM SEWER SYSTEM.

3.5 WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASES FOR 14 DAYS, THE DISTURBED AREAS SHALL BE STABILIZED WITH SEED AND MULCH.

3.6 THE CONTRACTOR SHALL RE-SEED ALL AREAS DISTURBED DURING CONSTRUCTION AND CONTRACTOR SHALL BE RESPONSIBLE FOR SEEDED AREAS UNTIL GROWTH IS ESTABLISHED TO A UNIFORM HEIGHT OF TWO (2) INCHES.

3.7 THERE ARE NO OFFSITE MATERIAL, WASTE, BORROW, OR EQUIPMENT STORAGE AREAS.

3.8 THE STORM WATER POLLUTION PREVENTION PLAN SHALL BE UPDATED AS NECESSARY TO REMAIN CONSISTENT WITH ANY CHANGES APPLICABLE TO PROTECT SURFACE WATER RESOURCES IN SEDIMENT EROSION SITE PLANS OR SITE PLANS OR SITE PERMITS, OR STORM WATER MANAGEMENT SITE PLANS OR SITE PERMITS APPROVED BY STATE OR LOCAL OFFICIALS FOR WHICH THE PERMITEE RECEIVES WRITTEN NOTICE.

3.9 A MINIMUM OF 18" BERMUDA SOD SHALL BE PLACED BEHIND ALL CURBS AND FLUMES IMMEDIATELY AFTER CONSTRUCTION.

CONTRACTOR TO SEE STORMWATER POLLUTION PREVENTION PLAN FOR ALL EROSION CONTROL REQUIREMENTS.

CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

Tanner Consulting, LLC
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Broken Arrow, Oklahoma

PROJECT: 12060
ISSUE DATE: 7/30/2013
ATLAS PAGE NO: 000

PLAN SCALE: (H) 1"=60'
(V) N/A

Erosion Control

16 OF 16

P:\2012\12060\SHEETS\12060SEC.DWG, EROSION CONTROL, 7/30/2013 4:08:10 PM, DKETENBRINK, lti, TANNER CONSULTING, LLC, OK CA 2661 Exp 6/30/2015

Sanitary Sewer Notes

7.1 ALL SANITARY SEWER COLLECTION SYSTEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT CITY ENGINEERING AND CONSTRUCTION STANDARDS AND SPECIFICATIONS. ALL SANITARY SEWER COLLECTION SYSTEM CONSTRUCTION SHALL BE INSPECTED BY THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT UTILITY INSPECTORS, IN ACCORDANCE WITH CITY POLICY.

7.2 THE CONTRACTOR SHALL VERIFY UTILITY LOCATIONS BEFORE EXCAVATING, AND SHALL BE RESPONSIBLE FOR CONTACTING AND COORDINATING WITH ALL PUBLIC OR PRIVATE UTILITY COMPANIES IN THE VICINITY OF CONSTRUCTION.

7.3 THE CONTRACTOR SHALL VERIFY THE INVERT AND FLOWLINE ELEVATIONS OF THE EXISTING SANITARY SEWER PRIOR TO LAYING ANY NEW PIPE.

7.4 PVC SEWER PIPE SHALL BE ASTM D1784 SDR-35.

7.5 DUCTILE IRON PIPE SHALL BE USED AT ANY POINT WHERE THE CENTERLINE CUT IS SIXTEEN (16) FEET OR MORE, WHERE CONCRETE ENCASEMENT IS SPECIFIED, OR WHERE A WATER MAIN IS WITHIN TWO (2) FEET OF THE SEWER.

7.6 DUCTILE IRON PIPE (DIP) IN CRUSHED STONE BEDDING SHALL BE USED AT ANY POINT WHERE THE CENTERLINE CUT TO ORIGINAL GROUND IS LESS THAN FOUR (4) FEET.

7.7 TEES FOR FUTURE SERVICE CONNECTIONS SHALL BE INSTALLED AND PLUGGED DURING MAIN CONSTRUCTION.

7.8 IN-LINE SERVICE TEES SHALL BE OF THE SAME MATERIAL AS PIPE INSTALLED. FOR EXAMPLE, UNDER PAVED DRIVING SURFACES, THE MAIN AND SERVICE TEE SHALL BE DUCTILE IRON PIPE (DIP).

7.9 SPECIAL RISERS SHALL BE INSTALLED FOR EACH LOT WHERE THE MAIN SEWER DEPTH WILL BE TWELVE (12) FEET OR GREATER BELOW FINISHED GRADE.

7.10 TAPS ON EXISTING LINES, THAT DID NOT HAVE TEES INSTALLED DURING CONSTRUCTION, SHALL BE INSTALLED IN ACCORDANCE WITH CITY STANDARD DRAWINGS.

7.11 MANHOLES LESS THAN 4'-6" IN HEIGHT SHALL HAVE A FULL 5'-0" INSIDE DIAMETER FROM TOP TO BOTTOM.

7.12 ALL PRECAST MANHOLES SHALL HAVE ADJUSTABLE TOP RIMS PROVIDING SIX (6) INCHES, PLUS OR MINUS, FOR ADJUSTMENT TO FINAL GRADES. ELEVATIONS SHOWN ON PLANS MAY BE ADJUSTED WHILE THE WORK IS IN PROGRESS TO CONFORM TO FINAL IN-PLACE PAVING AND LANDSCAPE GRADES.

7.13 THE UTILITY CONTRACTOR ASSUMES THE RISK OF ORDERING PRECAST CONCRETE COMPONENTS PRIOR TO FIELD STAKING AND REVIEW OF FIELD CONDITIONS AT THE TIME OF CONSTRUCTION.

7.14 THE UTILITY CONTRACTOR SHALL BE REQUIRED TO VACUUM TEST ALL MANHOLES ACCORDING TO CURRENT CITY OF BROKEN ARROW ENGINEERING AND CONSTRUCTION DEPARTMENT STANDARDS AND SPECIFICATIONS.

7.15 BEDDING, BACKFILL, AND COMPACTION SHALL BE IN ACCORDANCE WITH CITY STANDARD DRAWINGS. STREET BACKFILL AND COMPACTION REQUIREMENTS SHALL EXTEND TWO (2) FEET BACK OF CURB. WHEN REPLACING A SEWER IN SERVICE 3/8 INCH CHIPS SHALL BE USED FOR BEDDING AND INITIAL BACKFILL.

7.16 ALL SERVICE TEES ARE STATIONED FROM THE IMMEDIATE DOWNSTREAM MANHOLE.

7.17 WHEN WORKING IN OR ADJACENT TO EXISTING SUBDIVISIONS ONLY ONE (1) DAYS WORTH OF TRENCH IS MAY BE OPEN AT A GIVEN TIME. THIS REQUIREMENT MAY BE MODIFIED, IN WRITING BY THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT DIRECTOR, FOR A SPECIFIC PROJECT.

7.18 ROAD CLOSURES MUST BE COORDINATED A MINIMUM OF TWENTY FOUR (24) HOURS IN ADVANCE. ROADS WILL NOT BE CLOSED FOR OVER EIGHT (8) HOURS WITHOUT WRITTEN PERMISSION FROM THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT DIRECTOR.

7.19 CONTRACTOR SHALL SUBMIT PROFESSIONAL ENGINEER'S TRENCH EXCAVATION PLAN FOR ALL EXCAVATIONS IN EXCESS OF 20 FEET.

7.20 THE OWNER SHALL FURNISH AS-BUILT FIELD NOTES AND QUANTITIES TO THE ENGINEER UPON COMPLETION OF THE PROJECT.

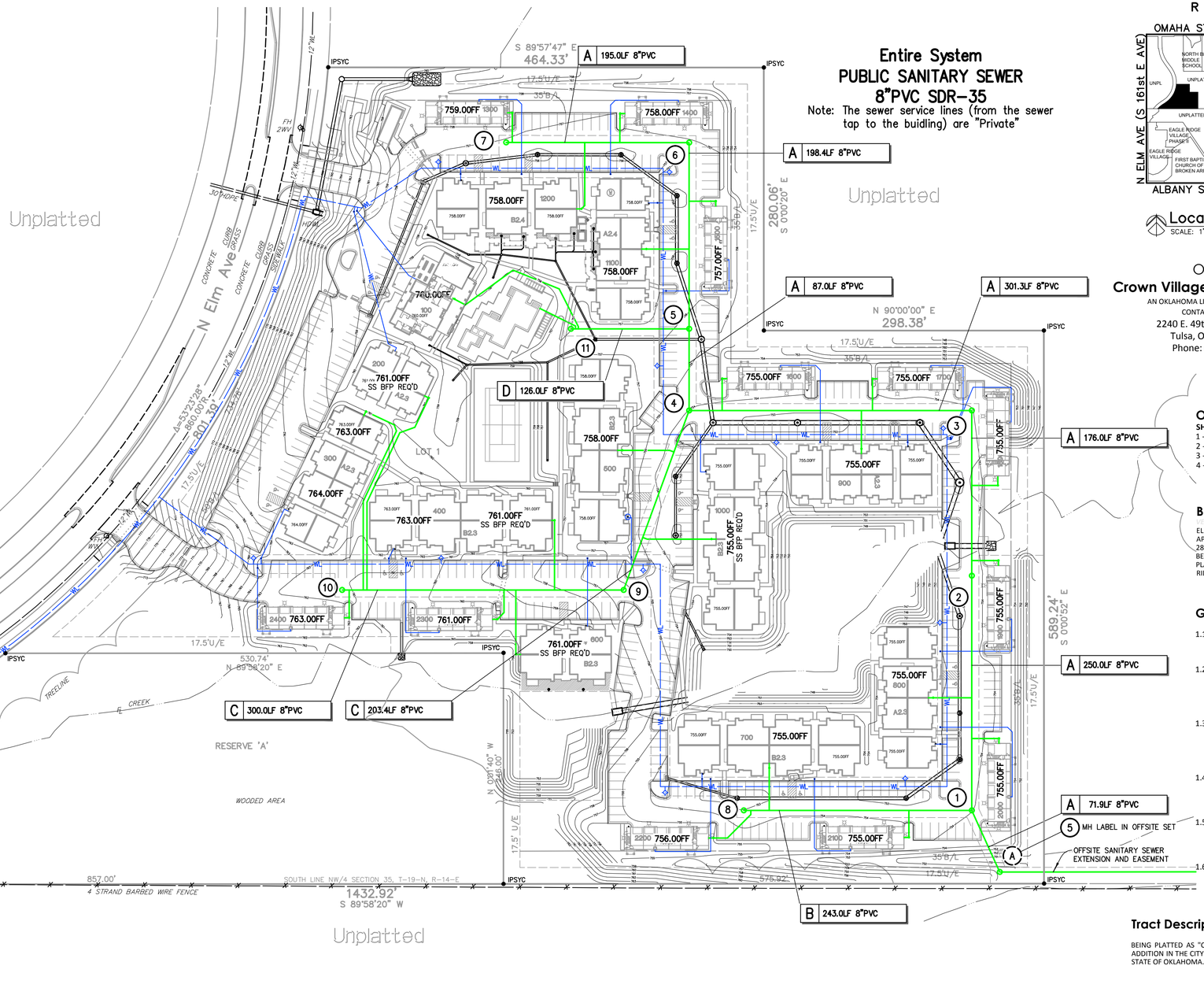
Legend

B/L	BUILDING LINE
FF	FINISH FLOOR ELEVATION
FH	FIRE HYDRANT
FL	FLOWLINE
HDWL	HEADWALL
IP	IRON PIN
LF	LINEAR FOOT
MH	MANHOLE
PVC	POLYVINYL CHLORIDE PIPE
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
TG	TOP OF GRATE
TR	TOP OF RIM
WL	WATERLINE
WM	WATER METER
WV	WATER VALVE
U/E	UTILITY EASEMENT

PUD 216-A

Crown Village at Elm Ridge

PART OF THE NORTHWEST QUARTER (NW/4) OF SECTION THIRTY-FIVE (35)
TOWNSHIP NINETEEN (19) NORTH, RANGE FOURTEEN (14) EAST, OF THE INDIAN MERIDIAN
AN ADDITION IN THE CITY OF BROKEN ARROW, TULSA COUNTY, STATE OF OKLAHOMA



Onsite Sanitary Sewer Index

SHEET NUMBER - NAME

Benchmark

CONTROLLING BENCHMARK: ADS CAP "BA41"
ELEVATION = 792.44 (NGVD 1929)
APPROXIMATELY 2644 FEET NORTH AND 2820 FEET WEST OF THE POINT OF BEGINNING FOR THE TRACT BEING PLATTED AS "CROWN VILLAGE AT ELM RIDGE".

General Notes

1.1 TOPOGRAPHIC INFORMATION SHOWN HEREIN WAS PROVIDED BY TANNER CONSULTING, LLC.

1.2 WHEREVER THE WORD "CITY" APPEARS HEREIN THE SAME SHALL CONCLUSIVELY BE DEEMED TO MEAN THE CITY OF BROKEN ARROW, OKLAHOMA UNLESS THE CONTEXT CLEARLY DICTATES OTHERWISE.

1.3 THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY WORK ORDERS AND PERMITS FROM THE CITY, INCLUDING PROVISION OF BONDS AND INSURANCE AS REQUIRED.

1.4 THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT AT LEAST 24 HOURS PRIOR TO START OF CONSTRUCTION.

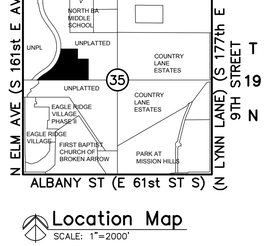
1.5 ONE-TIME CONSTRUCTION STAKING SHALL BE PROVIDED BY THE OWNER. ANY RESTAKING WILL BE REQUESTED AND PAID FOR BY THE CONTRACTOR.

1.6 TESTING SHALL BE PROVIDED BY THE OWNER. ANY FAILING TESTS SHALL BE RETESTED AT THE CONTRACTOR'S EXPENSE FOLLOWING CORRECTIVE ACTIONS.

Tract Description

BEING PLATTED AS "CROWN VILLAGE AT ELM RIDGE", AN ADDITION IN THE CITY OF BROKEN ARROW, TULSA COUNTY, STATE OF OKLAHOMA.

CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06



Location Map
SCALE: 1"=2000'

OWNER:
Crown Village at Elm Ridge, LLC
AN OKLAHOMA LIMITED LIABILITY COMPANY
CONTACT: ED LEINBACH
2240 E. 49th Street, Suite 100
Tulsa, Oklahoma 74105
Phone: (918)743-2100

DANIEL EDWIN TANNER 13090 REGISTERED PROFESSIONAL ENGINEER OKLAHOMA
7-31-2013

Tanner Consulting, LLC
Land Planning
Civil Engineering
Land Surveying
Architecture
Interior Design
5323 SOUTH LEWIS AVENUE
TULSA, OKLAHOMA 74105
PHONE (918)745-9929
FAX (918)745-9969
www.tanner-consulting-llc.com
CERTIFICATE OF AUTHORIZATION NO. CA 2661 EXP. 6/30/2015

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MILESTONE	DATE
PLOT DATE: 7/31/13	

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARDS AND SPEC'S (INCLUDING O.D.O.T. 2009 EDITION).

Crown Village at Elm Ridge
Part of the NW/4, Section 35, T-19-N, R-14-E
Broken Arrow, Oklahoma

PROJECT: 12060
ISSUE DATE: 7/30/2013
ATLAS PAGE NO: 000
PLAN SCALE: (H) 1"=60'
(V) N/A

Onsite Sanitary Sewer Cover

1 OF 04

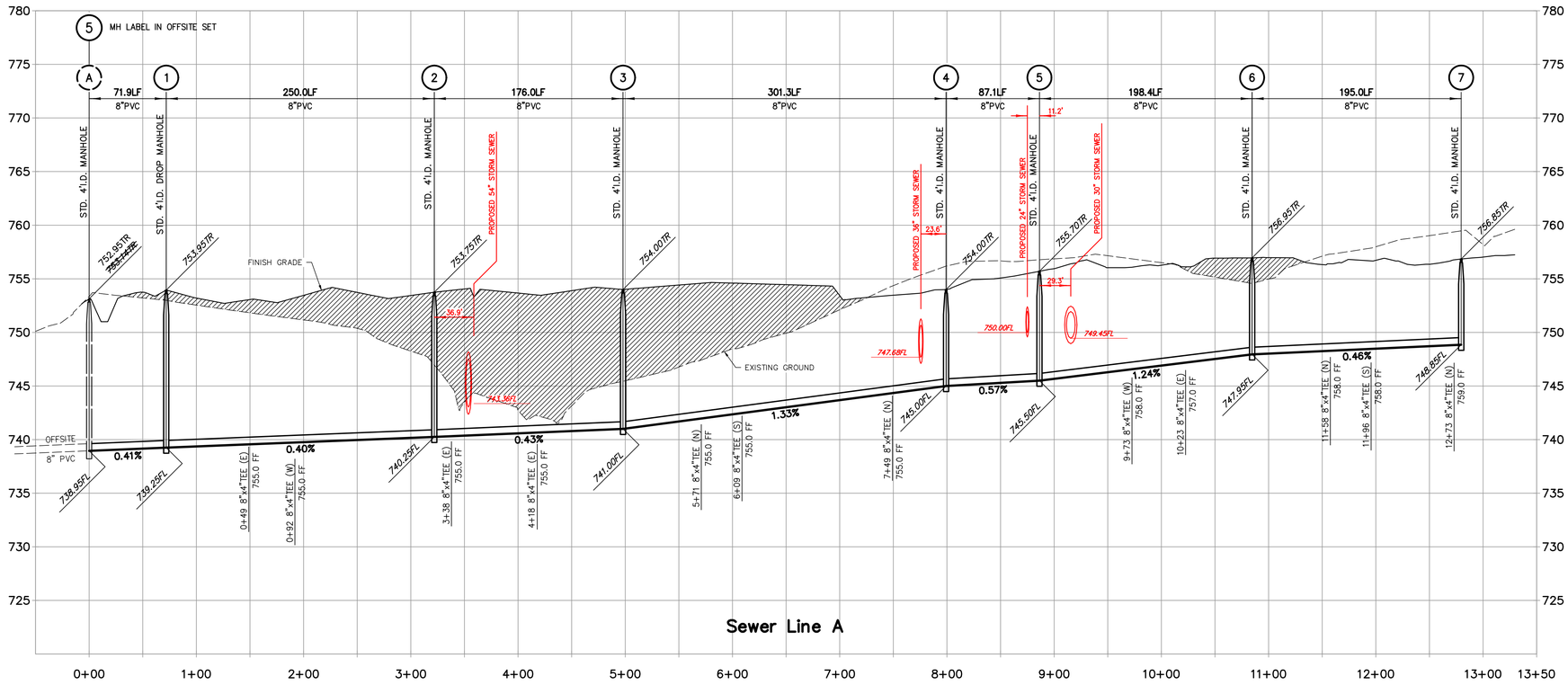
P:\2012\12060\SHEETS\12060SSCV.DWG, 1, 7/31/2013 8:59:26 AM, STORBETT, H:\ TANNER CONSULTING, LLC, OK CA 2661 Exp 6/30/2015

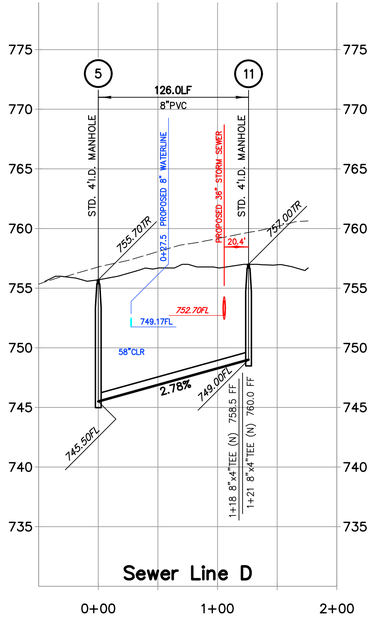
Benchmark

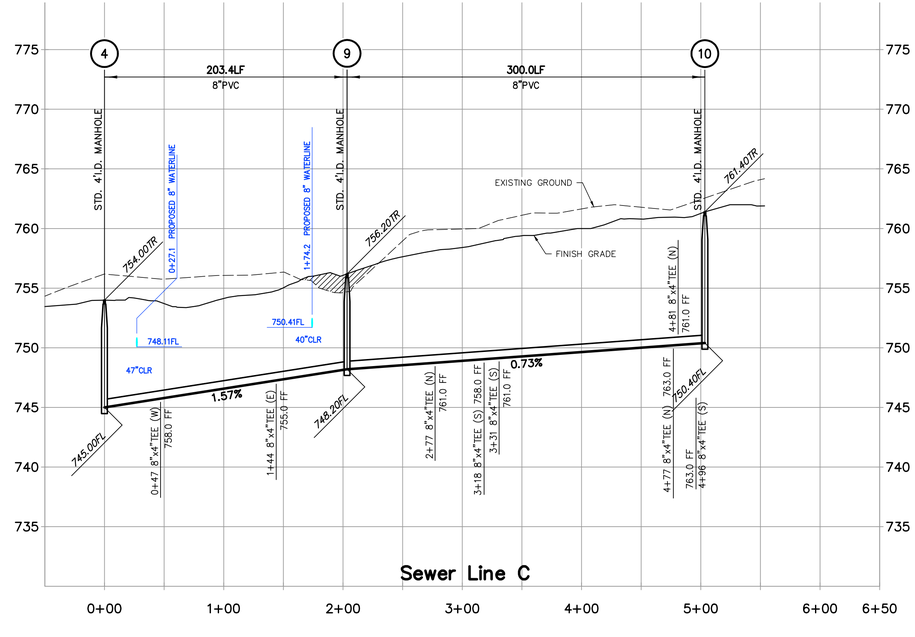
ADS CAP "BA41"
ELEVATION = 792.44 (NGVD 1929)
APPROXIMATELY 2644 FEET NORTH AND 2820 FEET WEST OF THE POINT OF BEGINNING FOR THE TRACT BEING PLATTED AS "CROWN VILLAGE AT ELM RIDGE".

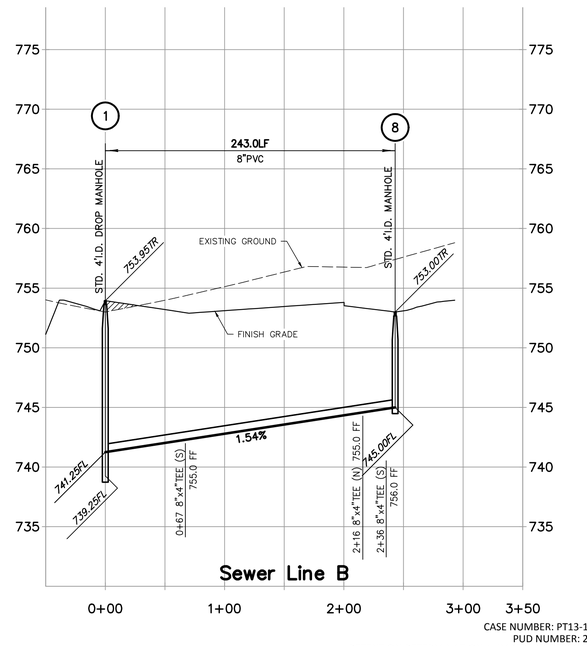
DENOTES AREAS TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY PRIOR TO UTILITY CONSTRUCTION.

UTILITY LINES LOCATED UNDER PAVED STREETS SHALL BE LAID IN TYPE A AGGREGATE BASE AND THE TRENCH COMPLETELY FILLED TO SUBGRADE WITH TYPE A AGGREGATE BASE COMPACTED TO 95% STANDARD DENSITY, OR FLOWABLE FILL, AS SHOWN ON PROFILES.









CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

DANIEL EDWIN TANNER
19090
OKLAHOMA
7-30-2013

Tanner Consulting, LLC
Land Planning
Civil Engineering
Land Surveying
Architecture
Interior Design

5323 SOUTH LEWIS AVENUE
TULSA, OKLAHOMA 74105
PHONE (918)745-9929
FAX (918)745-9969
www.tannerconsulting-llc.com

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MILESTONE	DATE
PLOT DATE: 7/30/13	

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Crown Village at Elm Ridge

Part of the NW/4, Section 35, T-19-N, R-14-E
Broken Arrow, Oklahoma

PROJECT:	12060
ISSUE DATE:	7/30/2013
ATLAS PAGE NO:	000
PLAN SCALE: (H)	1"=60'
(V)	1"=6'

Onsite Sanitary Sewer Profiles

2

OF 04

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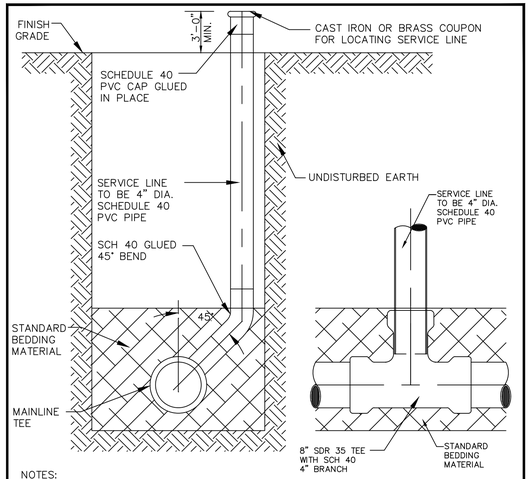
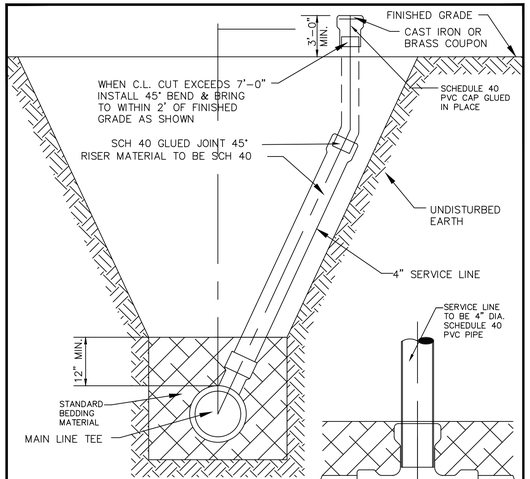


NOTES:
1. ALL NEW SANITARY SEWER LINES SHALL HAVE TAPS INSTALLED AS SHOWN ON THIS DETAIL FOR LINES UP TO 12 FEET DEEP. OVER 12 FEET DEEP STANDARD DRAWINGS SS 04 AND SS 05 WILL BE USED.
2. THE TAP SHALL BE LOCATED AT THE FIRST JOINT AT LEAST FIVE (5) FEET UPSTREAM FROM THE DOWNSTREAM PROPERTY LINE. THE EXACT LOCATION SHALL BE NOTED ON THE AS-BUILT PLANS AS A DISTANCE IN FEET FROM THE NEAREST MANHOLE.
3. FOR WIDE TRENCHES THE LAYOUT ON STANDARD DRAWING SS 04 WILL BE USED.

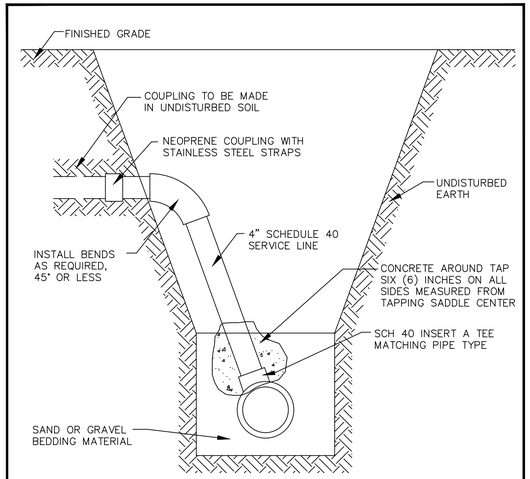
SANITARY SEWER TAP DETAIL
(NARROW TRENCH NEW CONSTRUCTION)

STANDARD DRAWING: STD SS 03A



SANITARY SEWER RISER DETAIL
(NORMAL TRENCH)

STANDARD DRAWING: STD SS 03



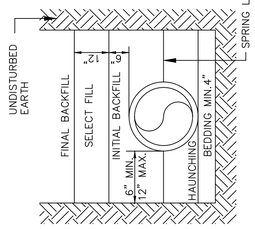
NOTES:
1. PVC SHOWN, HOWEVER, CLAY TILE, CONCRETE, AND DUCTILE IRON SHALL BE TAPPED IN SAME MANNER WITH CHANGE OF TAPPING SADDLE AND EXPANDING POLYURETHANE IN PLACE OF SOLVENT WELDING.
2. ALL MAIN LINE HOLES TO BE SAWED OR DRILLED AND COUPON PRESENTED AT TIME OF INSPECTION.
3. TAPS SHALL BE LEFT UNCOVERED FOR ONE (1) FOOT ON EACH SIDE OF SADDLE, UNTIL TAP IS INSPECTED.

SANITARY SEWER TAP DETAIL
(EXISTING SEWER)

STANDARD DRAWING: STD SS 02

PAVED AREAS						
P V C	CRUSHED ROCK	CRUSHED ROCK	CRUSHED ROCK	3/8" CHIPS	3/8" CHIPS	3/8" CHIPS
DUCTILE IRON	CRUSHED ROCK	CRUSHED ROCK	CRUSHED ROCK	3/8" CHIPS	3/8" CHIPS	3/8" CHIPS
CRUSHED ROCK	CRUSHED ROCK	CRUSHED ROCK	3/8" CHIPS	3/8" CHIPS	3/8" CHIPS	3/8" CHIPS

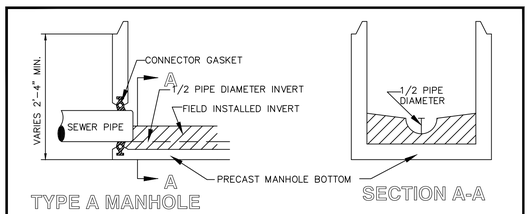
NON-PAVED AREAS						
P V C	DUCTILE IRON	CONCRETE	EXCAVATED MATERIAL	SELECT FILL	SAND	3/8" CHIPS
EXCAVATED MATERIAL	EXCAVATED MATERIAL	SELECT FILL	SELECT FILL	SAND	SAND	3/8" CHIPS
SELECT FILL	SELECT FILL	SAND	SAND	SAND	SAND	3/8" CHIPS
SAND	SAND	SAND	SAND	SAND	SAND	3/8" CHIPS



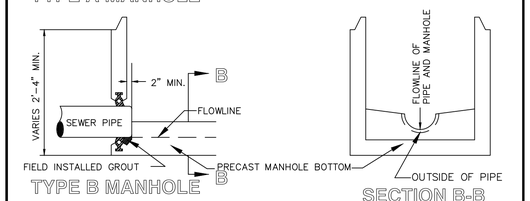
NOTES:
1. SELECT FILL CONSISTS OF EXCAVATED MATERIALS CONTAINING NO ROCKS LARGER THAN 2 INCHES.
2. CRUSHED ROCK SHALL BE 1/2" TYPE A ROCK.
3. BEDDING REQUIRED FOR ALL SANITARY SEWER REPLACEMENT PROJECTS IN ROCK EXCAVATION AND FOR LEVELING TRENCH IN NEW INSTALLATION.
4. COMPACTION REQUIREMENTS:
   a. NON-PAVED AREAS: 90% MAXIMUM STANDARD PROCTOR DENSITY FOR COHESIONLESS SOILS AND 85% FOR COHESIVE SOILS.
   b. PAVED AREAS: 95% MAXIMUM STANDARD PROCTOR DENSITY FOR COHESIONLESS SOILS.
5. FILL OVER 12 FEET DEEP SHALL BE SAND MATERIAL IN THE AREA FROM SELECT FILL TO BEDDING SHALL BE 3/4" CRUSHER RUN, WELL GRADED.
6. FLOWABLE FILL MAY BE SUBSTITUTED FOR ALL MATERIALS IN ROAD CROSSING.

SANITARY SEWER PIPE BEDDING DETAIL

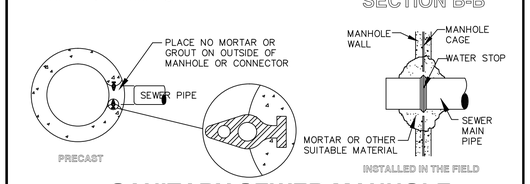
STANDARD DRAWING: STD SS 01



TYPE A MANHOLE

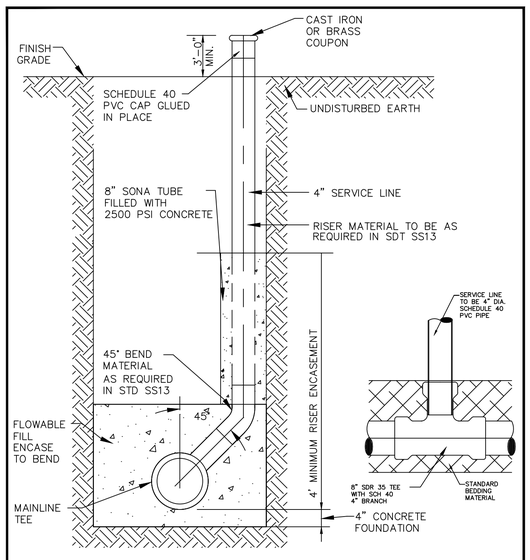


TYPE B MANHOLE



SANITARY SEWER MANHOLE PIPE CONNECTOR DETAILS

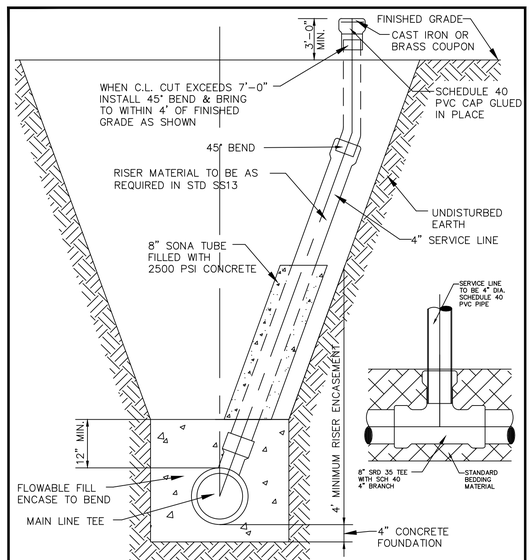
STANDARD DRAWING: STD SS 06



NOTE:
PIPE TYPE BASED ON SEWER PIPE AS REQUIRED ON STD SS13

SANITARY SEWER RISER DETAIL
OVER 15' DEEP
(NARROW TRENCH)

STANDARD DRAWING: STD SS 05



NOTE:
PIPE TYPE REQUIRED ON STD SS13

SANITARY SEWER RISER DETAIL
OVER 15' DEEP
(WIDE TRENCH)

STANDARD DRAWING: STD SS 04

CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

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REGISTERED PROFESSIONAL ENGINEER
DAN EDWIN TANNER
19090
OKLAHOMA
7/30/2013

Tanner Consulting, LLC
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Civil Engineering
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Interior Design

5323 SOUTH LEWIS AVENUE
TULSA, OKLAHOMA 74105
PHONE (918)745-9929
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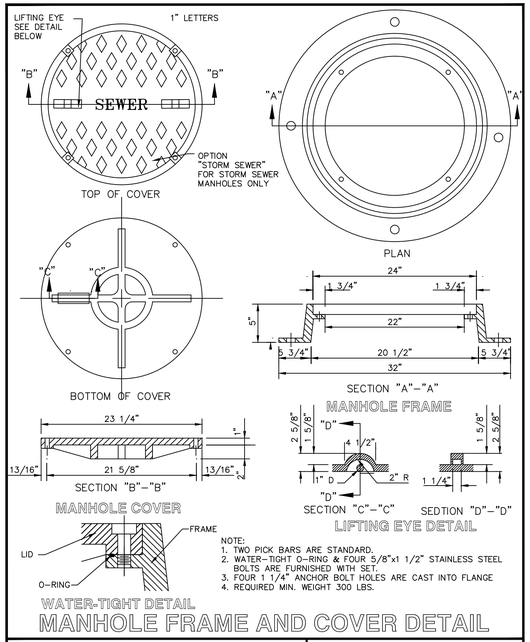
PROJECT: 12060
ISSUE DATE: 7/30/2013
ATLAS PAGE NO: 000

PLAN SCALE: (H) N/A
(V) N/A

Onsite Sanitary Sewer Details

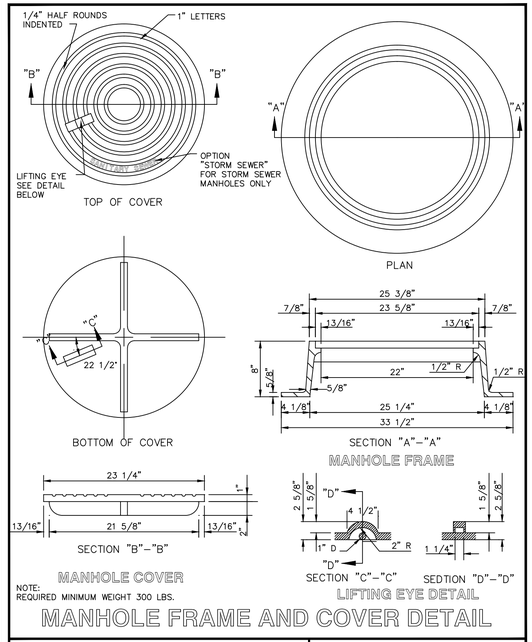
3

OF 04



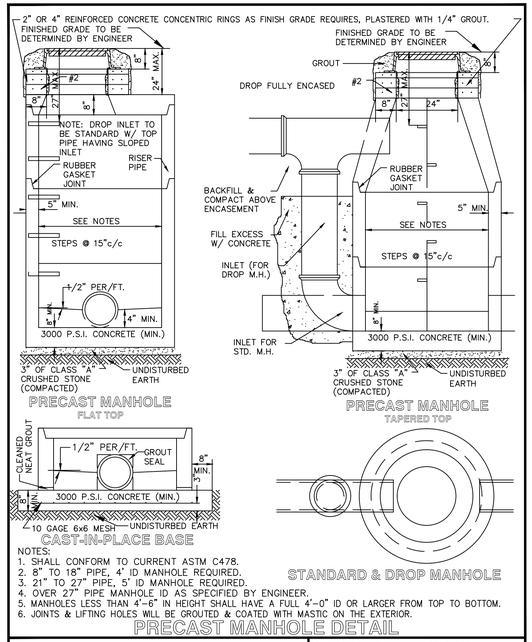
MANHOLE FRAME AND COVER DETAIL

STANDARD DRAWING: STD SS 09a



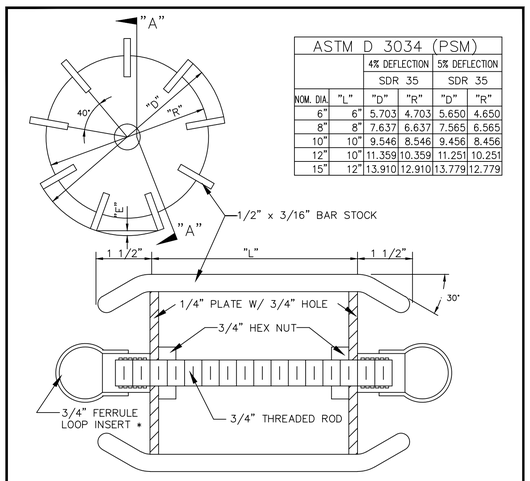
MANHOLE FRAME AND COVER DETAIL

STANDARD DRAWING: STD SS 09



PRECAST MANHOLE DETAIL

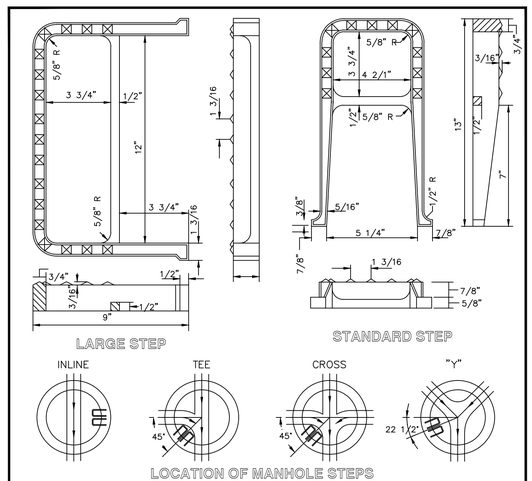
STANDARD DRAWING: STD SS 08



ASTM D 3034 (PSM)		4% DEFLECTION		5% DEFLECTION	
		SDR 35		SDR 35	
NOM. DIA.	"L"	"D"	"R"	"D"	"R"
6"	6"	5.703	4.703	5.650	4.650
8"	8"	7.637	6.637	7.565	6.565
10"	10"	9.546	8.546	9.456	8.456
12"	10"	11.359	10.359	11.251	10.251
15"	12"	13.910	12.910	13.779	12.779

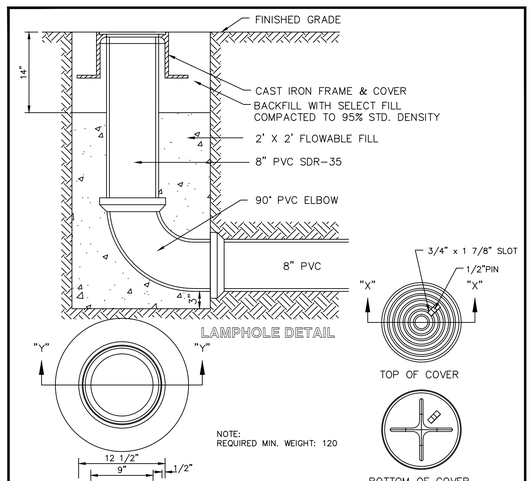
PVC SEWER DEFLECTION GAGE

STANDARD DRAWING: STD SS 12



MANHOLE STEPS & INVERT DETAILS

STANDARD DRAWING: STD SS 11



LAMPHOLE, FRAME & COVER DETAIL

STANDARD DRAWING: STD SS 10

CASE NUMBER: PT13-101
PUD NUMBER: 216
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P:\2012\12060\SHEETS\12060SSDT.DWG, 2, 7/30/2013 4:09:14 PM, DKETENBRINK, IS: TANNER CONSULTING, LLC, OK CA 2661 Exp 6/30/2015

REGISTERED PROFESSIONAL ENGINEER
DAN EDWIN TANNER
13090
OKLAHOMA
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Land Planning
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PLAN SCALE: (H) N/A
(V) N/A

Onsite Sanitary Sewer Details

4 OF 04

Water Notes

8.1 ALL WATER DISTRIBUTION SYSTEMS SHALL BE DESIGNED IN ACCORDANCE WITH THE CURRENT CITY OF TULSA LAND SUBDIVISION CODE AND ALL CONSTRUCTION INSTALLATION SHALL MEET OR EXCEED THE CITY OF BROKEN ARROW ENGINEERING AND CONSTRUCTION DEPARTMENT STANDARDS AND MUNICIPAL POLICY.

8.2 THE PROJECT RESPONSIBLE CONTRACTOR AND ANY OTHER SUB-CONTRACTORS UNDER SEPARATE CONTRACT, IS/ARE REQUIRED TO HAVE A PRE-CONSTRUCTION MEETING WITH CITY STAFF. SUCH A MEETING IS REQUIRED BEFORE ANY INFRASTRUCTURE CONSTRUCTION IS PERFORMED. SHOULD THE RESPONSIBLE CONTRACTOR(S) REPRESENTATIVE FAIL TO PARTICIPATE WITHIN A MUTUALLY SCHEDULED PRE-CONSTRUCTION MEETING, ALL CONSTRUCTION ACTIVITIES SHALL BE IMMEDIATELY TERMINATED INDEFINITELY BY THE CITY. SUCH MEETINGS WILL ALSO BE MANDATORY, UPON CITY'S REQUEST, DURING THE CONSTRUCTION PROCESS, IF NECESSARY.

8.3 ALL WATER DISTRIBUTION SYSTEM CONSTRUCTION SHALL BE INSPECTED BY THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT UTILITY INSPECTORS.

8.4 DIG THROUGH LOCATOR TAPE WILL BE BURIED 2 FEET ABOVE THE LINE.

8.5 WHEN C-900 PVC IS USED, A NO. 8 BARE COPPER WIRE SHALL BE TAPED TO THE TOP SURFACE OF THE PIPE AND CONNECTED TO EACH FIRE HYDRANT BY ATTACHING TO A BOLT, JUST ABOVE GROUND LEVEL.

8.6 ALL IRON PIPE AND FITTINGS SHALL BE POLYWRAPPED.

8.7 ALL DISTRIBUTION LINES IN CONDUIT AND AT DRAINAGE FEATURE CROSSINGS SHALL BE CONSTRUCTED WITH RESTRAINED JOINTS.

8.8 ALL MAIN LINES SHALL HAVE A MINIMUM OF THREE (3) FEET AND A MAXIMUM OF EIGHT (8) FEET OF COVER, UNLESS OTHERWISE SHOWN HEREIN.

8.9 BEDDING, BACKFILL, AND COMPACTION OVER WATER LINES SHALL BE IN ACCORDANCE WITH STANDARD DRAWINGS 304 & 305. BACKFILL AND COMPACTION REQUIREMENT FOR STREET CROWNING SHALL EXTEND TWO (2) FEET BACK OF CURB.

8.10 ALL WATER DISTRIBUTION SYSTEM LINES, EXCEPT DEAD END FOR FIRE HYDRANTS ONLY, SHALL BE LOOPED TO PROVIDE CIRCULATION.

8.11 DISTRIBUTION LINES SMALLER THAN FOUR (4) INCHES SHALL NOT BE INSTALLED.

8.12 FIRE HYDRANTS:

A. FIRE HYDRANTS SHALL BE A MINIMUM 5 1/4 INCH NOZZLE TYPE AND OF THE KENNEDY, MUELLER, OR AMERICAN DARLING BRAND NAME.

B. EACH HYDRANT SHALL BE SET WITH THE STREAMER NOZZLE FACING THE STREET AND WITH A MINIMUM CLEARANCE OF EIGHTEEN (18) INCHES ABOVE THE FINISHED GRADE.

C. ALL EXPOSED PORTIONS OF FIRE HYDRANTS SHALL BE PAINTED WITH A SAFETY YELLOW ENAMEL AS MANUFACTURED BY GLIDDEN OR DUPONT.

8.13 WHEN WORKING IN OR ADJACENT TO EXISTING SUBDIVISIONS ONLY ONE (1) DAYS WORTH OF TRENCH MAY BE OPEN AT A GIVEN TIME. THIS REQUIREMENT MAY BE MODIFIED, IN WRITING BY THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT DIRECTOR, FOR A SPECIFIC PROJECT.

8.14 ROAD CLOSURES MUST BE COORDINATED A MINIMUM OF TWENTY FOUR (24) HOURS IN ADVANCE. ROADS WILL NOT BE CLOSED FOR OVER EIGHT (8) HOURS WITHOUT WRITTEN PERMISSION FROM THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT DIRECTOR.

8.15 ALL FITTING BENDS, TEES AND FIRE HYDRANTS SHALL HAVE MECHANICAL JOINT RESTRAINTS, WITH MIDCO GRIP RINGS.

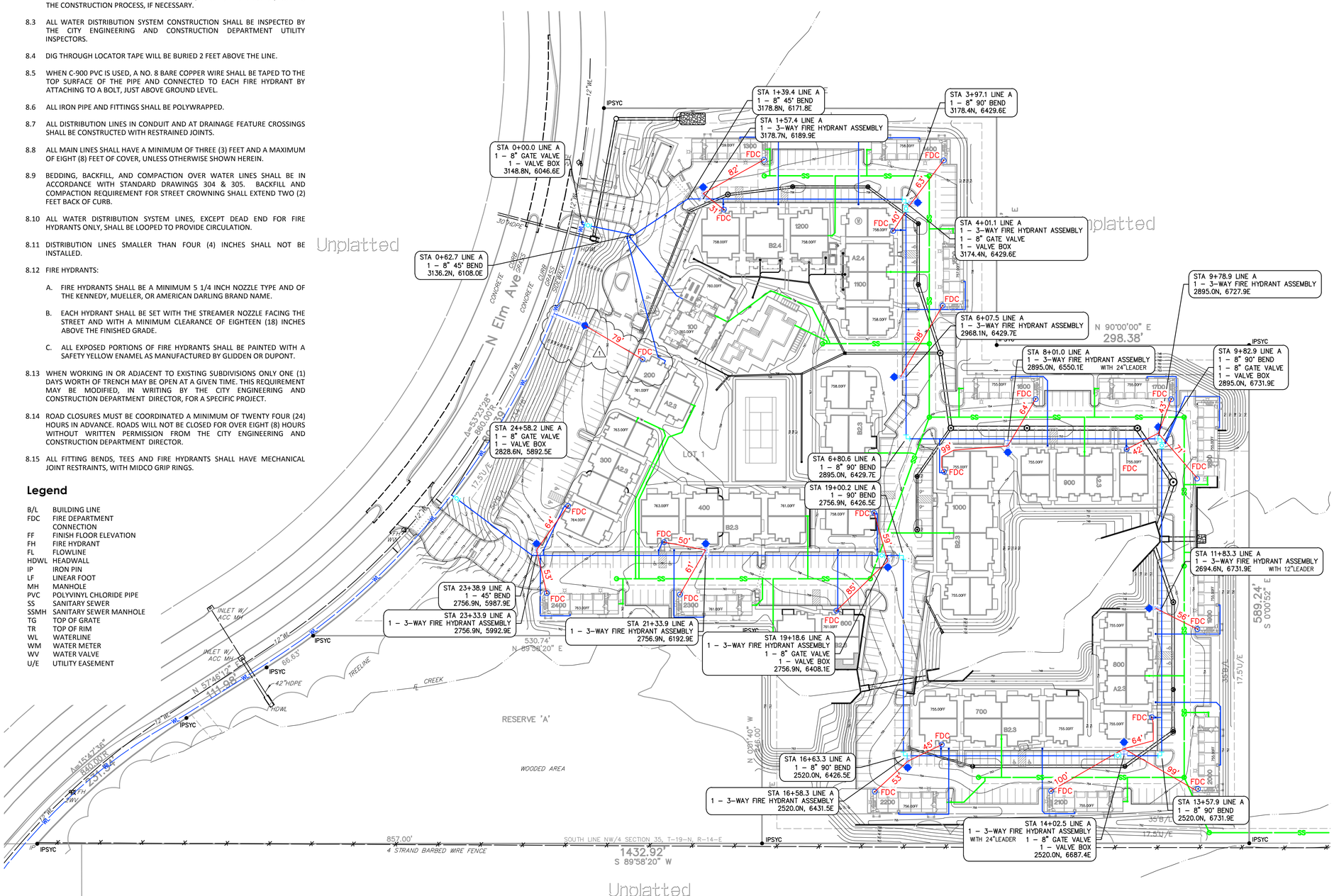
Legend

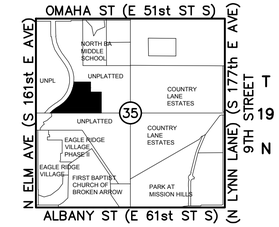
B/L	BUILDING LINE
FDC	FIRE DEPARTMENT CONNECTION
FF	FINISH FLOOR ELEVATION
FH	FIRE HYDRANT
FL	FLOWLINE
HDWL	HEADWALL
IP	IRON PIN
LF	LINEAR FOOT
MH	MANHOLE
PVC	POLYVINYL CHLORIDE PIPE
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
TG	TOP OF GRATE
TR	TOP OF RIM
WL	WATERLINE
WM	WATER METER
WV	WATER VALVE
U/E	UTILITY EASEMENT

PUD 216-A

Crown Village at Elm Ridge

PART OF THE NORTHWEST QUARTER (NW/4) OF SECTION THIRTY-FIVE (35)
TOWNSHIP NINETEEN (19) NORTH, RANGE FOURTEEN (14) EAST, OF THE INDIAN MERIDIAN
AN ADDITION IN THE CITY OF BROKEN ARROW, TULSA COUNTY, STATE OF OKLAHOMA





Location Map
SCALE: 1"=2000'

OWNER:
Crown Village at Elm Ridge, LLC
AN OKLAHOMA LIMITED LIABILITY COMPANY
CONTACT: ED LEINBACH
2240 E. 49th Street, Suite 100
Tulsa, Oklahoma 74105
Phone: (918)743-2100

Onsite Waterline Index

SHEET NUMBER - NAME
1 - ONSITE WATERLINE COVER
2 - ONSITE WATERLINE PROFILES
3 - ONSITE WATERLINE DETAILS

Benchmark

ADS CAP "BA41"
ELEVATION = 792.44 (NGVD 1929)
APPROXIMATELY 2644 FEET NORTH AND 2820 FEET WEST OF THE POINT OF BEGINNING FOR THE TRACT BEING PLATTED AS "CROWN VILLAGE AT ELM RIDGE".

General Notes

1.1 TOPOGRAPHIC INFORMATION SHOWN HEREIN WAS PROVIDED BY TANNER CONSULTING, LLC.

1.2 WHEREVER THE WORD "CITY" APPEARS HEREIN THE SAME SHALL CONCLUSIVELY BE DEEMED TO MEAN THE CITY OF BROKEN ARROW, OKLAHOMA UNLESS THE CONTEXT CLEARLY DICTATES OTHERWISE.

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Note: All FDCs are within 100' of a FH.

Note: All pipe shall be Ductile Iron

Tract Description

BEING PLATTED AS "CROWN VILLAGE AT ELM RIDGE", AN ADDITION IN THE CITY OF BROKEN ARROW, TULSA COUNTY, STATE OF OKLAHOMA.

CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

REGISTERED PROFESSIONAL ENGINEER
DAN EDWIN TANNER
13090
OKLAHOMA
9-12-2013

Tanner Consulting, LLC
Land Planning
Civil Engineering
Land Surveying
Architecture
Interior Design
5323 SOUTH LEWIS AVENUE
TULSA, OKLAHOMA 74105
PHONE (918)745-9929
FAX (918)745-9969
www.tanner-consulting-llc.com
CERTIFICATE OF AUTHORIZATION NO. CA 2661 EXP. 6/30/2015

BEFORE YOU DIG 811 CALL OKIE

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MILESTONE	DATE
REV FDC BLDG 200	9/12/13
PLOT DATE: 9/12/13	

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARDS AND SPEC'S (INCLUDING O.D.O.T. 2009 EDITION).

Crown Village at Elm Ridge

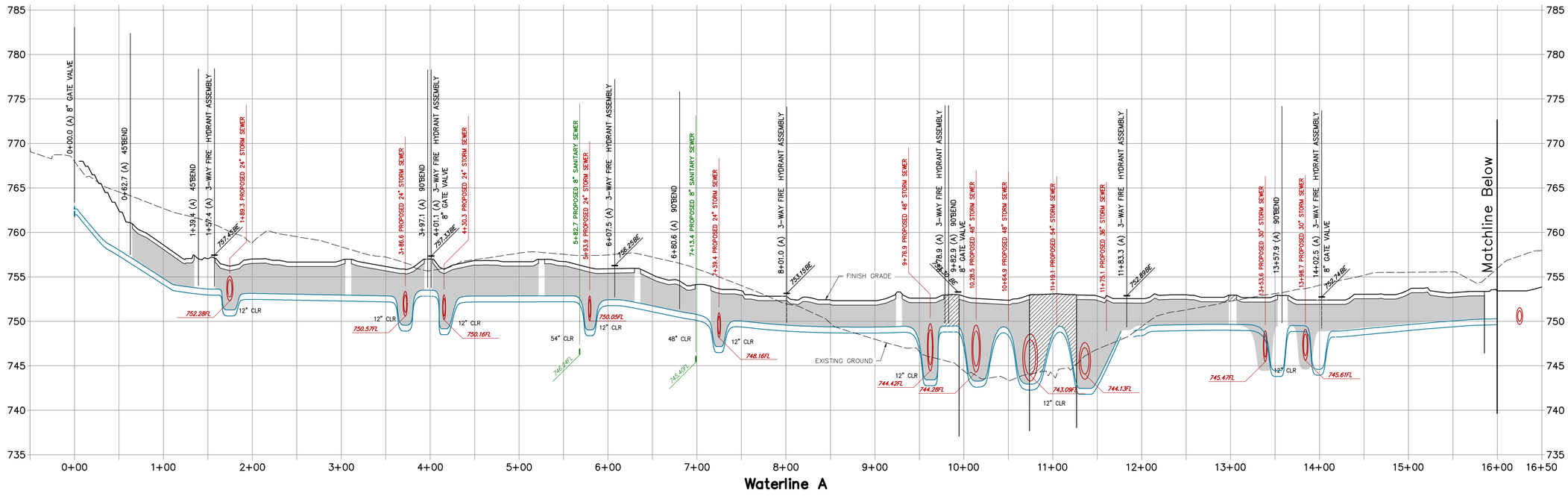
Part of the NW/4, Section 35, T-19-N, R-14-E
Broken Arrow, Oklahoma

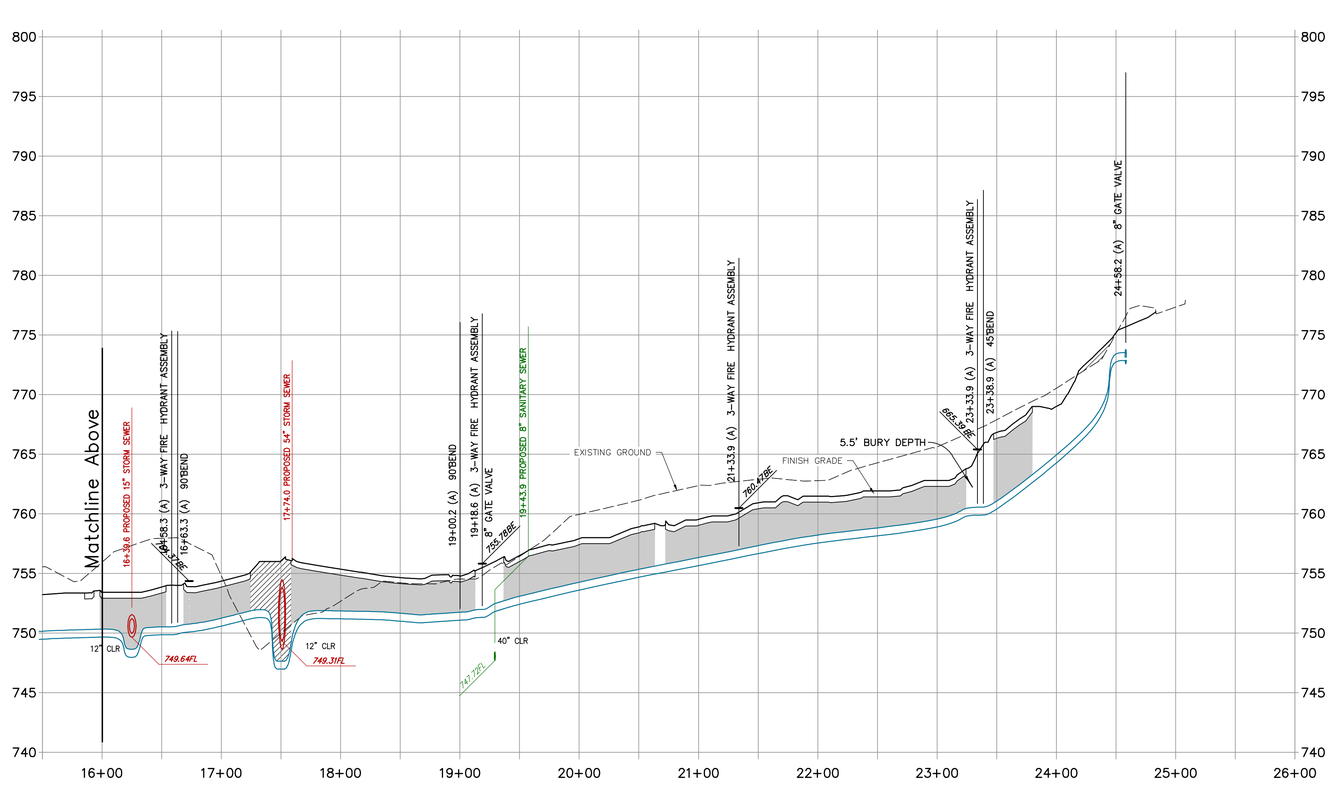
PROJECT:	12060
ISSUE DATE:	8/9/2013
ATLAS PAGE NO:	000
PLAN SCALE: (H)	1"=60'
(V)	N/A

Onsite Waterline Cover

1 OF 03

P:\2012\12060\SHEETS\12060WLCV.DWG, L 9/12/2013 2:51:54 PM, STORRETT, LS, TANNER CONSULTING, LLC, OK CA 2661 Exp 6/30/2015





Note: All pipe shall be Ductile Iron

COLOR INDEX

WATERLINE	WL
STORM SEWER	
SANITARY SEWER	SS

Benchmark

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DENOTES AREAS TO BE COMPACTED TO 95% STANDARD PROCTOR DENSITY PRIOR TO UTILITY CONSTRUCTION.

UTILITY LINES LOCATED UNDER PAVED STREETS SHALL BE LAID IN TYPE A AGGREGATE BASE AND THE TRENCH COMPLETELY FILLED TO SUBGRADE WITH TYPE A AGGREGATE BASE COMPACTED TO 95% STANDARD DENSITY, OR FLOWABLE FILL, AS SHOWN ON PROFILES.

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REGISTERED PROFESSIONAL ENGINEER
DAN EDWIN TANNER
13000
OKLAHOMA
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Crown Village at Elm Ridge

Part of the NW/4, Section 35, T-19-N, R-14-E

Broken Arrow, Oklahoma

PROJECT: 12060
ISSUE DATE: 8/9/2013
ATLAS PAGE NO: 000

PLAN SCALE: (H) 1"=60'
(V) 1"=6'

Onsite Waterline Profiles

2 OF 03

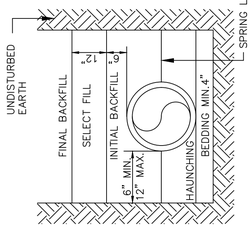
P:\2012\12060\SHEETS\12060WLPF.DWG, 1, 8/9/2013 10:49:59 AM, STORRETT, H, TANNER CONSULTING, LLC, OK CA 2661 EXP 6/30/2015

WATER PIPE BEDDING DETAIL

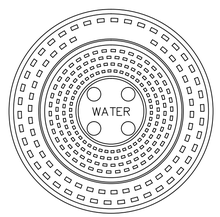
STANDARD DRAWING: STD W 01

NON–PAVED AREAS		
P V C	DUCTILE IRON	CONCRETE
EXCAVATED MATERIAL	EXCAVATED MATERIAL	EXCAVATED MATERIAL
SAND	SAND	SAND
SAND	SAND	SAND
SAND	SAND	SAND
CLEAN RIVER SAND		

PAVED AREAS		
P V C	DUCTILE IRON	CONCRETE
CRUSHED ROCK	CRUSHED ROCK	CRUSHED ROCK
CRUSHED ROCK	CRUSHED ROCK	CRUSHED ROCK
3/8" CHIPS	3/8" CHIPS	3/8" CHIPS
3/8" CHIPS	3/8" CHIPS	3/8" CHIPS
CLEAN RIVER SAND		



NOTES:
1. SELECT FILL CONSISTS OF EXCAVATED MATERIALS CONTAINING NO ROCKS LARGER THAN 2 INCHES.
2. CRUSHED ROCK SHALL BE ODOT TYPE A BASE.
3. BEDDING REQUIRED ONLY FOR ROCK EXCAVATION.
4. COMPACTION REQUIREMENTS:
   a. NON–PAVED AREAS: 90% MAXIMUM STANDARD PROCTOR DENSITY FOR COHESIONLESS SOILS AND 85% FOR COHESIVE SOILS.
   b. PAVED AREAS: 95% MAXIMUM STANDARD PROCTOR DENSITY FOR COHESIONLESS SOILS.
5. FILLS OVER 10 FEET DEEP – MATERIAL IN THE AREA FROM SELECT FILL TO BEDDING SHALL BE 3/4" CRUSHER RUN WELL GRADED.
6. FLOWABLE FILL MAY BE SUBSTITUTED FOR ALL MATERIALS IN ROAD CROSSING.
7. PAVED AREA INCLUDES 2' BEHIND CURB.

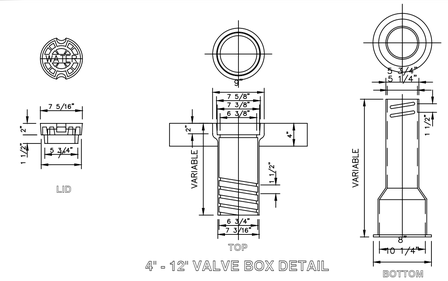


1. METER RING IS CAST WITH SIX BOLT/RIVIT HOLES THROUGH THE SKIRT FOR ATTACHMENT TO 28" DIA– METER CORRUGATED STEEL METER CAN. SPECIFY CAN HEIGHT WHEN ORDERING.
2. METER LID TO HAVE KEYED LOCKING MECHANISM.

	WEIGHT
LID	46 LBS
RING	61 LBS
SET	107 LBS

WATER VALVE VAULT FRAME AND LID DETAIL

STANDARD DRAWING: STD W 03



4" - 12" VALVE BOX DETAIL

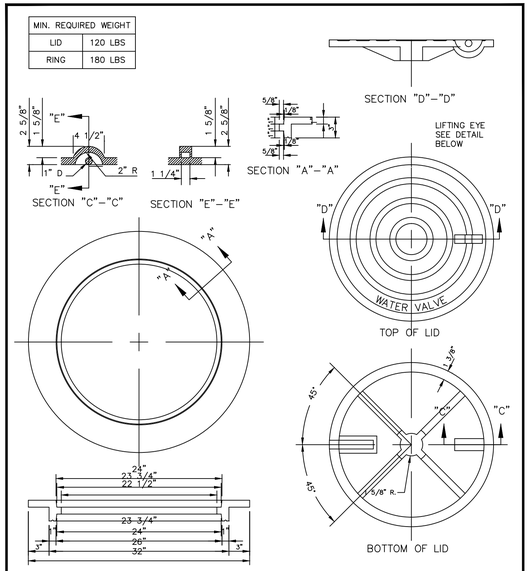
REQUIRED WEIGHTS	
LID	15 LBS
TOP (16")	30 LBS
BOTTOM (24")	35 LBS

NOTES:
1. WATER LINE CONTRACTOR TO PLACE 2 FOOT SQUARE CONCRETE PAD AROUND EACH WATER VALVE AFTER FINAL GRADING HAS BEEN COMPLETED AND TRENCHES HAVE SETTLED.
2. VALVE BOXES REQUIRING OVER 2 ADDITIONAL BOTTOM SECTIONS SHALL BE EXTENDED USING C900 DR14 PVC PIPE WITH A BOTTOM AND TOP SECTION PLACED ON TOP OF THE C900 DR14 PVC PIPE.

VALVE BOX DETAIL

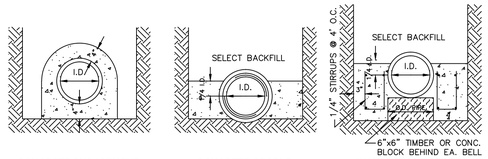
STANDARD DRAWING: STD W 04

MIN. REQUIRED WEIGHT	
LID	120 LBS
RING	180 LBS



FRAME AND LID FOR VALVE VAULTS

STANDARD DRAWING: STD W 05



CONCRETE ENCASEMENT
CONCRETE PER LF

8" I.D.	DIP, RCP	1.41 CF
10" I.D.	DIP, RCP	1.67 CF
12" I.D.	DIP, RCP	1.93 CF
15" I.D.	DIP, RCP	2.36 CF
18" I.D.	DIP, RCP	2.81 CF
21" I.D.	DIP, RCP	3.27 CF
24" I.D.	DIP, RCP	3.76 CF
27" I.D.	DIP, RCP	4.26 CF
30" I.D.	DIP	4.78 CF
30" I.D.	RCP	5.09 CF
36" I.D.	DIP, RCP	5.80 CF
36" I.D.	RCP	6.20 CF

CONCRETE CRADLE
CONCRETE PER LF

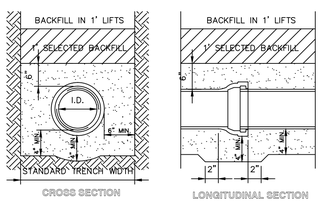
8" I.D.	DIP, RCP	1.09 CF
10" I.D.	DIP, RCP	1.23 CF
12" I.D.	DIP, RCP	1.33 CF
15" I.D.	DIP, RCP	1.66 CF
18" I.D.	DIP, RCP	2.00 CF
21" I.D.	DIP, RCP	1.96 CF
24" I.D.	DIP, RCP	2.69 CF
27" I.D.	DIP, RCP	3.52 CF
30" I.D.	DIP	3.38 CF
30" I.D.	RCP	4.40 CF
36" I.D.	DIP, RCP	4.12 CF
36" I.D.	RCP	5.26 CF

WATER TABLE CRADLE
CONCRETE PER LF

8" I.D.	DIP, RCP	2.34 CF
10" I.D.	DIP, RCP	2.48 CF
12" I.D.	DIP, RCP	2.58 CF
15" I.D.	DIP, RCP	3.04 CF
18" I.D.	DIP, RCP	3.50 CF
21" I.D.	DIP, RCP	3.46 CF
24" I.D.	DIP, RCP	4.44 CF
27" I.D.	DIP, RCP	5.52 CF
30" I.D.	DIP	5.38 CF
30" I.D.	RCP	6.65 CF
36" I.D.	DIP, RCP	6.37 CF
36" I.D.	RCP	7.76 CF

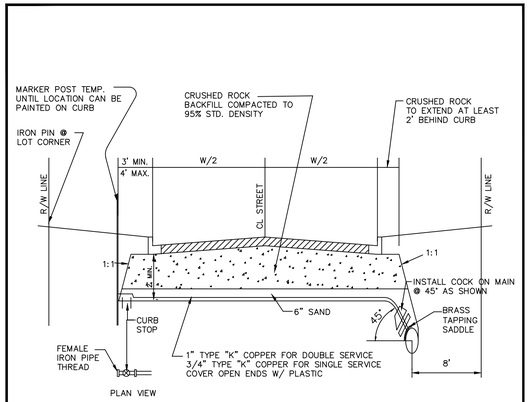
CONCRETE ENCASEMENT & CRADLES

NOTES:
1. ALL FINISHED SUB–GRADES SHALL BE PREPARED ACCU–RATELY BY MEANS OF HAND TOOLS.
2. TRENCH WIDTHS ARE DE–TAILED IN SPECIFICATION 311 EXCAVATION.



TRENCH CONDITIONS

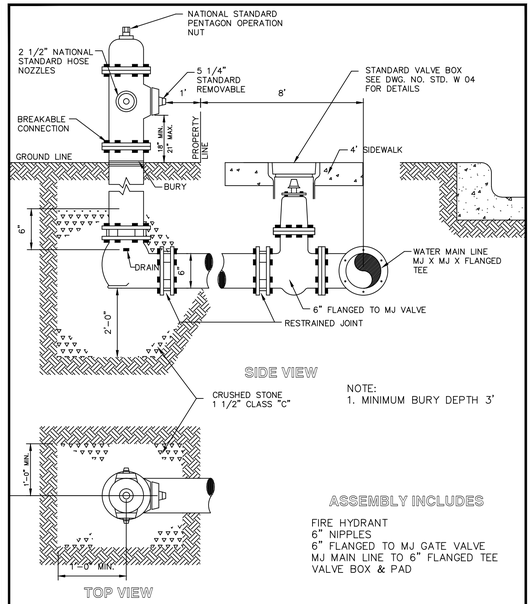
STANDARD DRAWING: STD W 07



NOTES:
1. LOT CORNERS SHALL BE STAKED PRIOR TO CONSTRUCTION OF SERVICE LINES, CROSSING TO BE ON LOT LINE.
2. DETECTABLE MYLAR MARKING TAPE (LIFEGUARD TYPE II OR EQUAL) TO BE INSTALLED OVER COPPER SERVICE AS SHOWN.
3. CROSSING NOT REQUIRED IN LOOPED CUL–DE–SAC.
4. COPPER SHALL NOT BE SPLICED.
5. CROSSING TO BE INSPECTED BEFORE TRENCH IS BACKFILLED.
6. IF ROCK IS USED IN BACKFILL, COPPER SHALL BE PLACED IN SCHEDULE 40 PVC SLEEVE

WATER LINE STREET CROSSING DETAIL

STANDARD DRAWING: STD W 08

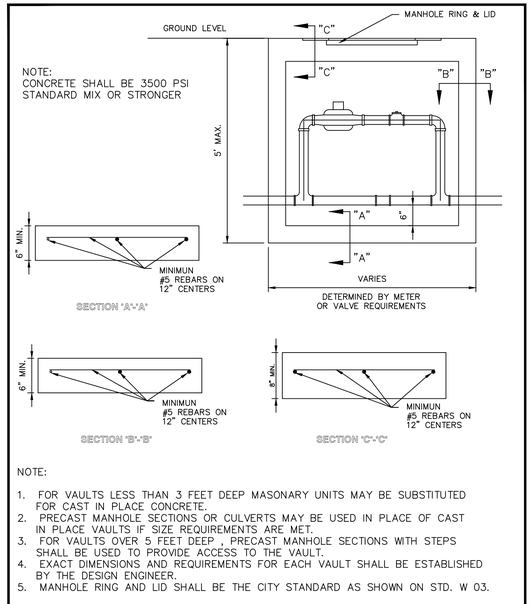


NOTE:
1. MINIMUM BURY DEPTH 3'

ASSEMBLY INCLUDES
FIRE HYDRANT
6" NIPPLES
6" FLANGED TO MJ GATE VALVE
MJ MAIN LINE TO 6" FLANGED TEE
VALVE BOX & PAD

FIRE HYDRANT ASSEMBLY DETAIL

STANDARD DRAWING: STD W 09



NOTE:
1. FOR VAULTS LESS THAN 3 FEET DEEP MASONARY UNITS MAY BE SUBSTITUTED FOR CAST IN PLACE CONCRETE.
2. PRECAST MANHOLE SECTIONS OR CULVERTS MAY BE USED IN PLACE OF CAST IN PLACE VAULTS IF SIZE REQUIREMENTS ARE MET.
3. FOR VAULTS OVER 5 FEET DEEP , PRECAST MANHOLE SECTIONS WITH STEPS SHALL BE USED TO PROVIDE ACCESS TO THE VAULT.
4. EXACT DIMENSIONS AND REQUIREMENTS FOR EACH VAULT SHALL BE ESTABLISHED BY THE DESIGN ENGINEER.
5. MANHOLE RING AND LID SHALL BE THE CITY STANDARD AS SHOWN ON STD. W 03.

METER OR VALVE VAULT DETAIL

STANDARD DRAWING: STD W 17

CASE NUMBER: PT13-101
PUD NUMBER: 216
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REGISTERED PROFESSIONAL ENGINEER
DAN EDWIN TANNER
13090
OKLAHOMA
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CERTIFICATE OF AUTHORIZATION NO.
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MILESTONE	DATE
PLOT DATE: 7/30/13	

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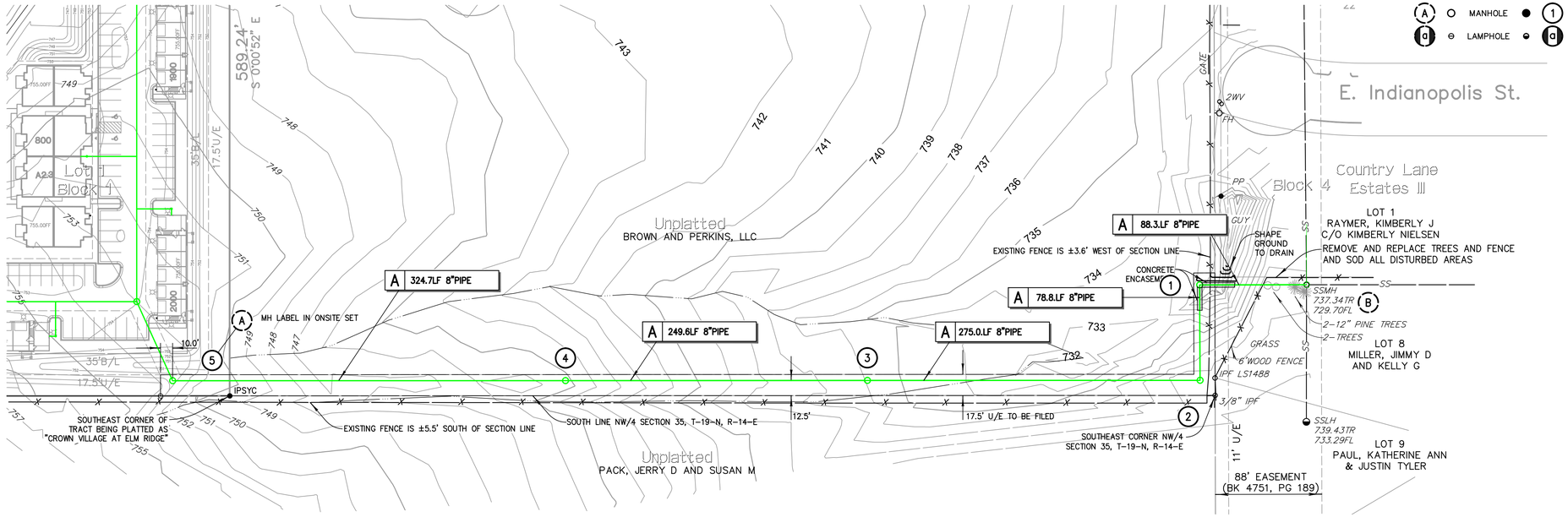
PLAN SCALE: (H)	N/A
(V)	N/A

Onsite Waterline Details

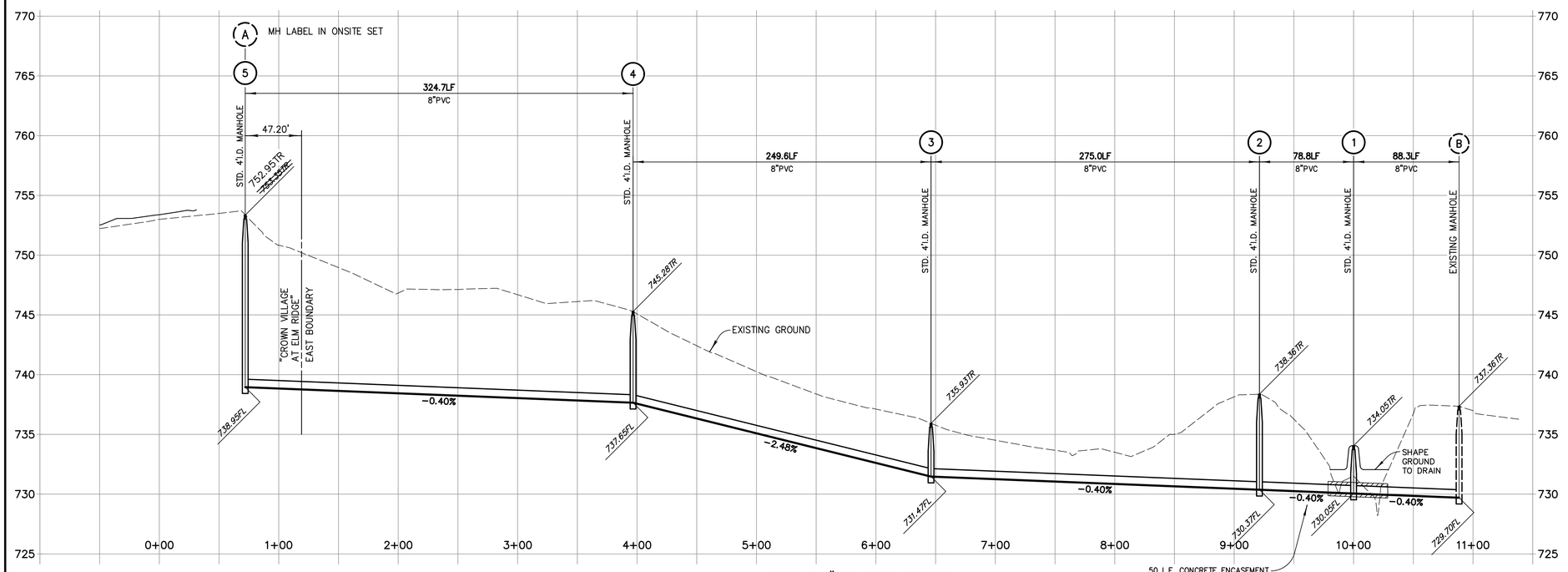
3

OF 03

P:\2012\12060\SHEETS\12060WLDT.DWG, I, 7/30/2013 4:10:01 PM, DKETENBRINK, In1, TANNER CONSULTING, LLC, OK CA 2661 Exp 6/30/2015



PUBLIC 8" SANITARY SEWER
PVC SDR-35



PUBLIC 8" SANITARY SEWER
PVC SDR-35

R 14 E
OMAHA ST (E 51st ST S)
N ELM AVE (S 161st E AVE)
(S 177th E AVE) (N LYNN LANE)
9TH STREET
T 19 N
ALBANY ST (E 61st S)
NORTH BK MIDDLE SCHOOL
UNPL
UNPLATTED
COUNTRY LANE ESTATES
EAGLE RIDGE VILLAGE PHASE II
FIRST BAPTIST CHURCH OF BROKEN ARROW
PARK AT MISSION HILLS
35

Location Map
SCALE: 1"=2000'

OWNER:
Brown and Perkins, LLC
AN OKLAHOMA LIMITED LIABILITY COMPANY
CONTACT: LINDSAY PERKINS
2223 E. Skelly Drive, Suite 10
Tulsa, Oklahoma 74105
Phone: (918) 749-1637

Offsite Sanitary Sewer Index

SHEET NUMBER - NAME
1 - OFFSITE SANITARY SEWER PLAN & PROFILE
2 - OFFSITE SEWER DETAILS
3 - OFFSITE SEWER DETAILS

Benchmark

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Tract Description of Property being served

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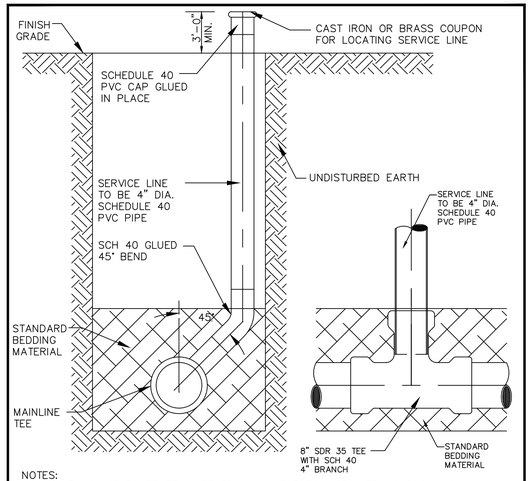
ATLAS PAGE NO: 000
PLAN SCALE: (H)
(V)

Offsite Sanitary Sewer Cover

1

OF 03

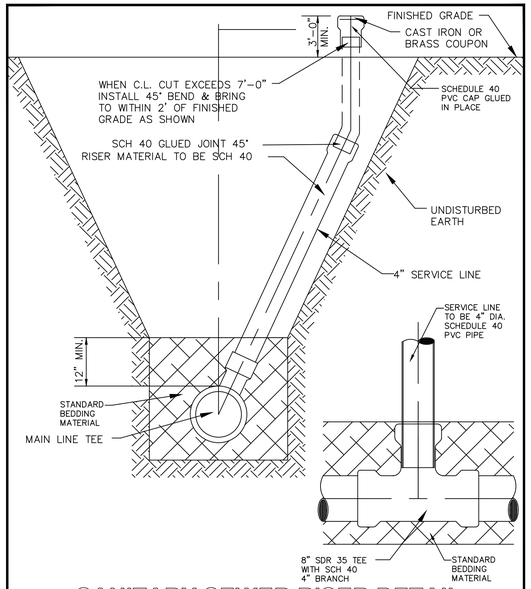
P:\2012\12060\SHEETS\12060OFFSITEWRK.dwg, 1, 7/30/2013 4:10:11 PM, DKETENBRINK, IN, TANNER CONSULTING, LLC, OK CA 2661 Exp 6/30/2015



NOTES:
1. ALL NEW SANITARY SEWER LINES SHALL HAVE TAPS INSTALLED AS SHOWN ON THIS DETAIL FOR LINES UP TO 12 FEET DEEP. OVER 12 FEET DEEP STANDARD DRAWINGS SS 04 AND SS 05 WILL BE USED.
2. THE TAP SHALL BE LOCATED AT THE FIRST JOINT AT LEAST FIVE (5) FEET UPSTREAM FROM THE DOWNSTREAM PROPERTY LINE. THE EXACT LOCATION SHALL BE NOTED ON THE AS-BUILT PLANS AS A DISTANCE IN FEET FROM THE NEAREST MANHOLE.
3. FOR WIDE TRENCHES THE LAYOUT ON STANDARD DRAWING SS 04 WILL BE USED.

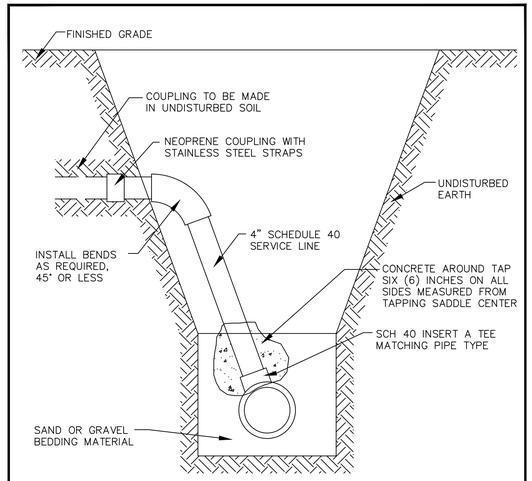
SANITARY SEWER TAP DETAIL
(NARROW TRENCH NEW CONSTRUCTION)

STANDARD DRAWING: STD SS 03A



SANITARY SEWER RISER DETAIL
(NORMAL TRENCH)

STANDARD DRAWING: STD SS 03



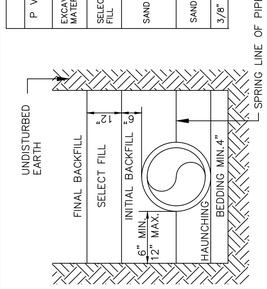
NOTES:
1. PVC SHOWN, HOWEVER, CLAY TILE, CONCRETE, AND DUCTILE IRON SHALL BE TAPPED IN SAME MANNER WITH CHANGE OF TAPPING SADDLE AND EXPANDING POLYURETHANE IN PLACE OF SOLVENT WELDING.
2. ALL MAIN LINE HOLES TO BE SAWED OR DRILLED AND COUPON PRESENTED AT TIME OF INSPECTION.
3. TAPS SHALL BE LEFT UNCOVERED FOR ONE (1) FOOT ON EACH SIDE OF SADDLE, UNTIL TAP IS INSPECTED.

SANITARY SEWER TAP DETAIL
(EXISTING SEWER)

STANDARD DRAWING: STD SS 02

PAVED AREAS					
P V C	CRUSHED ROCK	CRUSHED ROCK	CRUSHED ROCK	3/8" CHIPS	3/8" CHIPS	3/8" CHIPS
DUCTILE IRON	CRUSHED ROCK	CRUSHED ROCK	CRUSHED ROCK	3/8" CHIPS	3/8" CHIPS	3/8" CHIPS
CONCRETE	CRUSHED ROCK	CRUSHED ROCK	CRUSHED ROCK	3/8" CHIPS	3/8" CHIPS	3/8" CHIPS

NON-PAVED AREAS					
P V C	EXCAVATED MATERIAL	SELECT FILL	SAND	SAND	3/8" CHIPS
DUCTILE IRON	EXCAVATED MATERIAL	SELECT FILL	SAND	SAND	3/8" CHIPS
CONCRETE	EXCAVATED MATERIAL	SELECT FILL	SAND	SAND	3/8" CHIPS



NOTES:
1. SELECT FILL CONSISTS OF EXCAVATED MATERIALS CONTAINING NO ROCKS LARGER THAN 2 INCHES.
2. CRUSHED ROCK SHALL BE ODOT TYPE A ROCK.
3. BEDDING REQUIREMENTS APPLY TO ALL SEWER REPLACEMENT PROJECTS IN ROCK EXCAVATION AND FOR LEVELING TRENCH IN NEW INSTALLATION.
4. COMPACTION REQUIREMENTS:
   a. NON-PAVED AREAS: 90% MAXIMUM STANDARD PROCTOR DENSITY FOR COHESIONLESS SOILS AND 85% FOR COHESIVE SOILS.
   b. PAVED AREAS: 95% MAXIMUM STANDARD PROCTOR DENSITY FOR COHESIONLESS SOILS.
5. FLOWABLE FILL MATERIAL IN THE AREA FROM SELECT FILL TO BEDDING SHALL BE 3/4" CRUSHER RUN, WELL GRADED
6. FLOWABLE FILL MAY BE SUBSTITUTED FOR ALL MATERIALS IN ROAD CROSSING.

SANITARY SEWER PIPE BEDDING DETAIL

STANDARD DRAWING: STD SS 01

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MILESTONE	DATE
PLOT DATE: 7/30/13	

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARDS AND SPEC'S (INCLUDING O.D.O.T. 2009 EDITION).

Sanitary Sewer Notes

7.1 ALL SANITARY SEWER COLLECTION SYSTEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT CITY ENGINEERING AND CONSTRUCTION STANDARDS AND SPECIFICATIONS. ALL SANITARY SEWER COLLECTION SYSTEM CONSTRUCTION SHALL BE INSPECTED BY THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT UTILITY INSPECTORS, IN ACCORDANCE WITH CITY POLICY.

7.2 THE CONTRACTOR SHALL VERIFY UTILITY LOCATIONS BEFORE EXCAVATING, AND SHALL BE RESPONSIBLE FOR CONTACTING AND COORDINATING WITH ALL PUBLIC OR PRIVATE UTILITY COMPANIES IN THE VICINITY OF CONSTRUCTION.

7.3 THE CONTRACTOR SHALL VERIFY THE INVERT AND FLOWLINE ELEVATIONS OF THE EXISTING SANITARY SEWER PRIOR TO LAYING ANY NEW PIPE.

7.4 PVC SEWER PIPE SHALL BE ASTM D1784 SDR-35.

7.5 DUCTILE IRON PIPE SHALL BE USED AT ANY POINT WHERE THE CENTERLINE CUT IS SIXTEEN (16) FEET OR MORE, WHERE CONCRETE ENCASEMENT IS SPECIFIED, OR WHERE A WATER MAIN IS WITHIN TWO (2) FEET OF THE SEWER.

7.6 DUCTILE IRON PIPE (DIP) IN CRUSHED STONE BEDDING SHALL BE USED AT ANY POINT WHERE THE CENTERLINE CUT TO ORIGINAL GROUND IS LESS THAN FOUR (4) FEET.

7.7 TEES FOR FUTURE SERVICE CONNECTIONS SHALL BE INSTALLED AND PLUGGED DURING MAIN CONSTRUCTION.

7.8 IN-LINE SERVICE TEES SHALL BE OF THE SAME MATERIAL AS PIPE INSTALLED. FOR EXAMPLE, UNDER PAVED DRIVING SURFACES, THE MAIN AND SERVICE TEE SHALL BE DUCTILE IRON PIPE (DIP).

7.9 SPECIAL RISERS SHALL BE INSTALLED FOR EACH LOT WHERE THE MAIN SEWER DEPTH WILL BE TWELVE (12) FEET OR GREATER BELOW FINISHED GRADE.

7.10 TAPS ON EXISTING LINES, THAT DID NOT HAVE TEES INSTALLED DURING CONSTRUCTION, SHALL BE INSTALLED IN ACCORDANCE WITH CITY STANDARD DRAWINGS.

7.11 MANHOLES LESS THAN 4'-6" IN HEIGHT SHALL HAVE A FULL 5'-0" INSIDE DIAMETER FROM TOP TO BOTTOM.

7.12 ALL PRECAST MANHOLES SHALL HAVE ADJUSTABLE TOP RIMS PROVIDING SIX (6) INCHES, PLUS OR MINUS, FOR ADJUSTMENT TO FINAL GRADES. ELEVATIONS SHOWN ON PLANS MAY BE ADJUSTED WHILE THE WORK IS IN PROGRESS TO CONFORM TO FINAL IN-PLACE PAVING AND LANDSCAPE GRADES.

7.13 THE UTILITY CONTRACTOR ASSUMES THE RISK OF ORDERING PRECAST CONCRETE COMPONENTS PRIOR TO FIELD STAKING AND REVIEW OF FIELD CONDITIONS AT THE TIME OF CONSTRUCTION.

7.14 THE UTILITY CONTRACTOR SHALL BE REQUIRED TO VACUUM TEST ALL MANHOLES ACCORDING TO CURRENT CITY OF BROKEN ARROW ENGINEERING AND CONSTRUCTION DEPARTMENT STANDARDS AND SPECIFICATIONS.

7.15 BEDDING, BACKFILL, AND COMPACTION SHALL BE IN ACCORDANCE WITH CITY STANDARD DRAWINGS. STREET BACKFILL AND COMPACTION REQUIREMENTS SHALL EXTEND TWO (2) FEET BACK OF CURB. WHEN REPLACING A SEWER IN SERVICE 3/8 INCH CHIPS SHALL BE USED FOR BEDDING AND INITIAL BACKFILL.

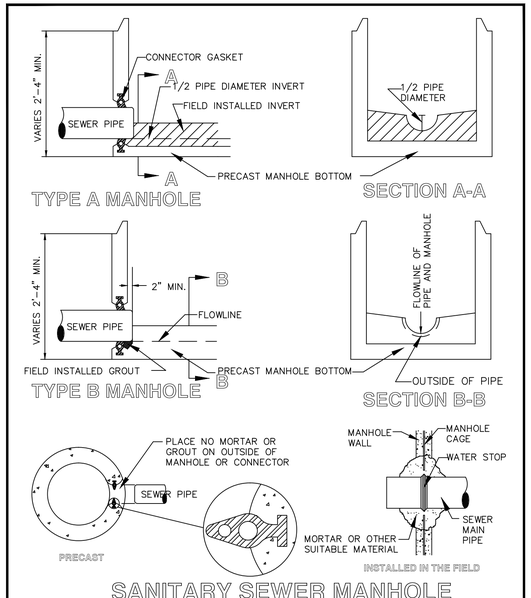
7.16 ALL SERVICE TEES ARE STATIONED FROM THE IMMEDIATE DOWNSTREAM MANHOLE.

7.17 WHEN WORKING IN OR ADJACENT TO EXISTING SUBDIVISIONS ONLY ONE (1) DAYS WORTH OF TRENCH MAY BE OPEN AT A GIVEN TIME. THIS REQUIREMENT MAY BE MODIFIED, IN WRITING BY THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT DIRECTOR, FOR A SPECIFIC PROJECT.

7.18 ROAD CLOSURES MUST BE COORDINATED A MINIMUM OF TWENTY FOUR (24) HOURS IN ADVANCE. ROADS WILL NOT BE CLOSED FOR OVER EIGHT (8) HOURS WITHOUT WRITTEN PERMISSION FROM THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT DIRECTOR.

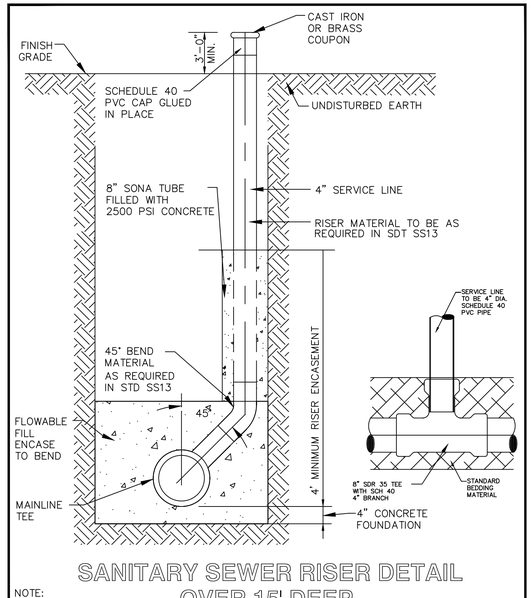
7.19 CONTRACTOR SHALL SUBMIT PROFESSIONAL ENGINEER'S TRENCH EXCAVATION PLAN FOR ALL EXCAVATIONS IN EXCESS OF 20 FEET.

7.20 THE OWNER SHALL FURNISH AS-BUILT FIELD NOTES AND QUANTITIES TO THE ENGINEER UPON COMPLETION OF THE PROJECT.



SANITARY SEWER MANHOLE PIPE CONNECTOR DETAILS

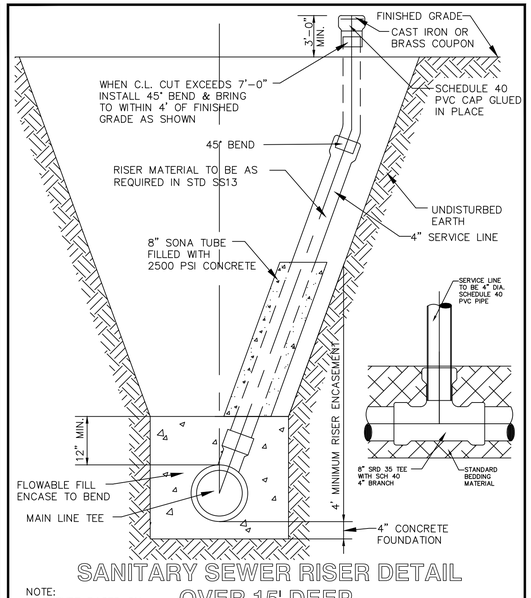
STANDARD DRAWING: STD SS 06



NOTE:
PIPE TYPE BASED ON SEWER PIPE AS REQUIRED ON STD SS13

SANITARY SEWER RISER DETAIL
OVER 15' DEEP
(NARROW TRENCH)

STANDARD DRAWING: STD SS 05



NOTE:
PIPE TYPE BASED ON PIPE REQUIRED ON STD SS13

SANITARY SEWER RISER DETAIL
OVER 15' DEEP
(WIDE TRENCH)

STANDARD DRAWING: STD SS 04

CASE NUMBER: PT13-001
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

DANIEL EDWIN TANNER
19090
OKLAHOMA
7/30/2013

Tanner Consulting, LLC
Land Planning
Civil Engineering
Land Surveying
Architecture
Interior Design

5323 SOUTH LEWIS AVENUE
TULSA, OKLAHOMA 74105
PHONE (918)745-9929
FAX (918)745-9969
www.tannerconsulting-llc.com

CERTIFICATE OF AUTHORIZATION NO.
CA 2661 EXP. 6/30/2015

BEFORE YOU DIG OKLAHOMA 811 CALL OKIE

Crown Village at Elm Ridge
Part of the NW/4, Section 35, T-19-N, R-14-E
Broken Arrow, Oklahoma

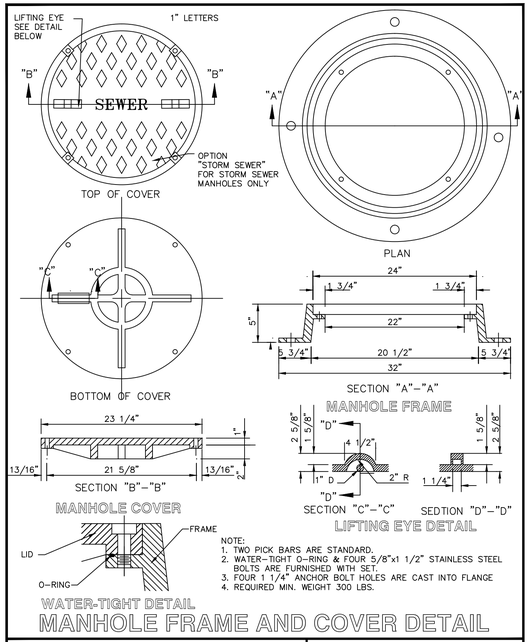
PROJECT: 12060
ISSUE DATE: 7/30/2013
ATLAS PAGE NO: 000

PLAN SCALE: (H) N/A
(V) N/A

Offsite Sewer Details

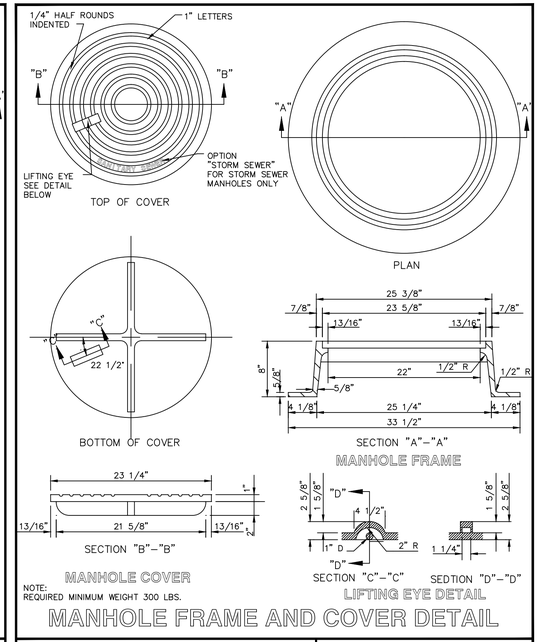
2 OF 03

P:\2012\12060\SHEETS\12060OFFSITEDT.DWG, L, 7/30/2013 4:10:27 PM, DKETENBRINK, I:\, TANNER CONSULTING, LLC, OK CA 2661 Exp 6/30/2015



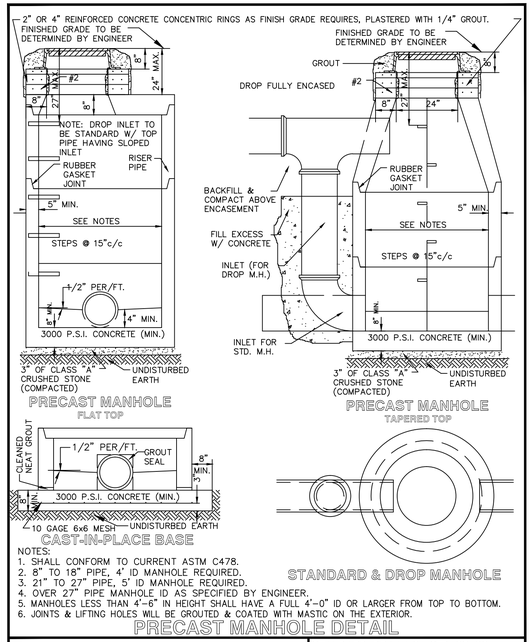
MANHOLE FRAME AND COVER DETAIL

STANDARD DRAWING: STD SS 09a



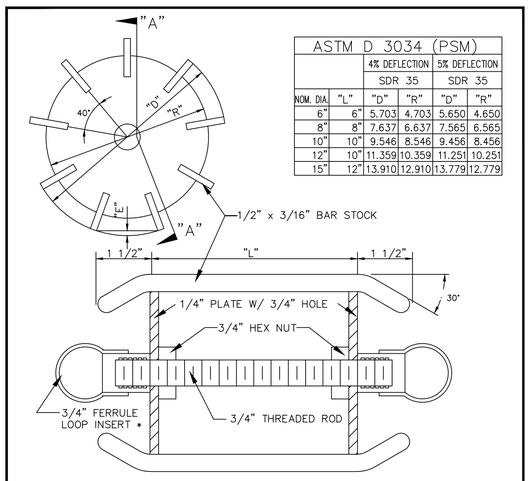
MANHOLE FRAME AND COVER DETAIL

STANDARD DRAWING: STD SS 09



PRECAST MANHOLE DETAIL

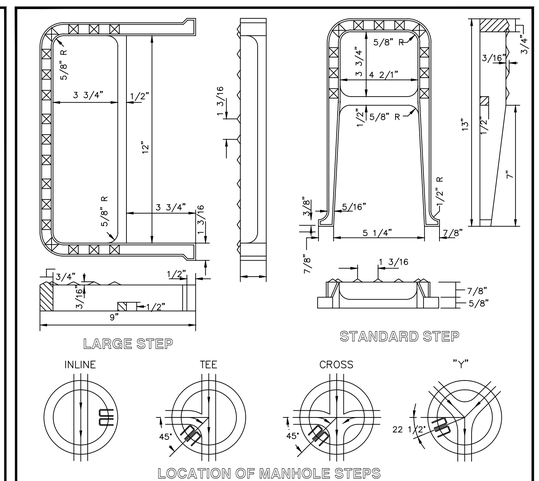
STANDARD DRAWING: STD SS 08



ASTM D 3034 (PSM)		4% DEFLECTION		5% DEFLECTION	
		SDR 35		SDR 35	
NOM. DIA.	"L"	"D"	"R"	"D"	"R"
6"	6"	5.703	4.703	5.650	4.650
8"	8"	7.637	6.637	7.565	6.565
10"	10"	9.546	8.546	9.456	8.456
12"	10"	11.359	10.359	11.251	10.251
15"	12"	13.910	12.910	13.779	12.779

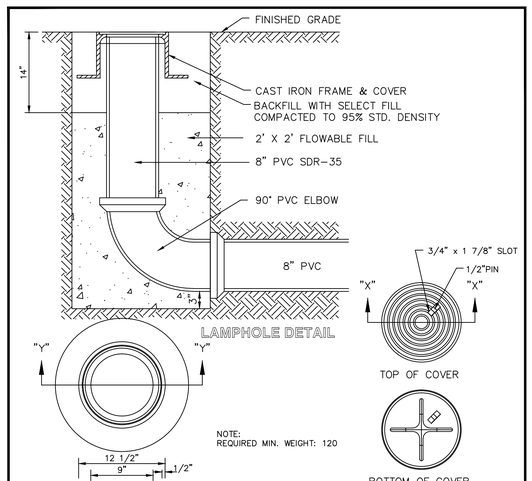
PVC SEWER DEFLECTION GAGE

STANDARD DRAWING: STD SS 12



MANHOLE STEPS & INVERT DETAILS

STANDARD DRAWING: STD SS 11



LAMPHOLE, FRAME & COVER DETAIL

STANDARD DRAWING: STD SS 10

CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

DANIEL EDWIN TANNER 13090 OKLAHOMA REGISTERED PROFESSIONAL ENGINEER
7/30/2013

Tanner Consulting, LLC
Land Planning
Civil Engineering
Land Surveying
Architecture
Interior Design

5323 SOUTH LEWIS AVENUE
TULSA, OKLAHOMA 74105
PHONE (918)745-9929
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CERTIFICATE OF AUTHORIZATION NO. CA 2661 EXP. 6/30/2015

BEFORE YOU DIG OKIE 811 CALL OKIE

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MILESTONE	DATE
PLOT DATE: 7/30/13	

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARDS AND SPEC'S (INCLUDING O.D.O.T. 2009 EDITION).

Crown Village at Elm Ridge

Part of the NW/4, Section 35, T-19-N, R-14-E

Broken Arrow, Oklahoma

PROJECT: 12060
ISSUE DATE: 7/30/2013
ATLAS PAGE NO: 000

PLAN SCALE: (H) N/A
(V) N/A

Offsite Sewer Details

3 OF 03

P:\2012\12060\SHEETS\12060OFFSITEDT.dwg, 2, 7/30/2013 4:10:34 PM, DMETTENBRINK, In: TANNER CONSULTING, LLC, OK CA 2661 Exp 6/30/2015

PUD 216-A

Crown Village at Elm Ridge

PART OF THE NORTHWEST QUARTER (NW/4) OF SECTION THIRTY-FIVE (35)
TOWNSHIP NINETEEN (19) NORTH, RANGE FOURTEEN (14) EAST, OF THE INDIAN MERIDIAN
AN ADDITION IN THE CITY OF BROKEN ARROW, TULSA COUNTY, STATE OF OKLAHOMA

Water Notes

8.1 ALL WATER DISTRIBUTION SYSTEMS SHALL BE DESIGNED IN ACCORDANCE WITH THE CURRENT CITY OF TULSA LAND SUBDIVISION CODE AND ALL CONSTRUCTION INSTALLATION SHALL MEET OR EXCEED THE CITY OF BROKEN ARROW ENGINEERING AND CONSTRUCTION DEPARTMENT STANDARDS AND MUNICIPAL POLICY.

8.2 THE PROJECT RESPONSIBLE CONTRACTOR AND ANY OTHER SUB-CONTRACTORS UNDER SEPARATE CONTRACT, IS/ARE REQUIRED TO HAVE A PRE-CONSTRUCTION MEETING WITH CITY STAFF. SUCH A MEETING IS REQUIRED BEFORE ANY INFRASTRUCTURE CONSTRUCTION IS PERFORMED. SHOULD THE RESPONSIBLE CONTRACTOR(S) REPRESENTATIVE FAIL TO PARTICIPATE WITHIN A MUTUALLY SCHEDULED PRE-CONSTRUCTION MEETING, ALL CONSTRUCTION ACTIVITIES SHALL BE IMMEDIATELY TERMINATED INDEFINITELY BY THE CITY. SUCH MEETINGS WILL ALSO BE MANDATORY, UPON CITY'S REQUEST, DURING THE CONSTRUCTION PROCESS, IF NECESSARY.

8.3 ALL WATER DISTRIBUTION SYSTEM CONSTRUCTION SHALL BE INSPECTED BY THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT UTILITY INSPECTORS.

8.4 DIG THROUGH LOCATOR TAPE WILL BE BURIED 2 FEET ABOVE THE LINE.

8.5 WHEN C-900 PVC IS USED, A NO. 8 BARE COPPER WIRE SHALL BE TAPED TO THE TOP SURFACE OF THE PIPE AND CONNECTED TO EACH FIRE HYDRANT BY ATTACHING TO A BOLT, JUST ABOVE GROUND LEVEL.

8.6 ALL IRON PIPE AND FITTINGS SHALL BE POLYWRAPPED.

8.7 ALL DISTRIBUTION LINES IN CONDUIT AND AT DRAINAGE FEATURE CROSSINGS SHALL BE CONSTRUCTED WITH RESTRAINED JOINTS.

8.8 ALL MAIN LINES SHALL HAVE A MINIMUM OF THREE (3) FEET AND A MAXIMUM OF EIGHT (8) FEET OF COVER, UNLESS OTHERWISE SHOWN HEREIN.

8.9 BEDDING, BACKFILL, AND COMPACTION OVER WATER LINES SHALL BE IN ACCORDANCE WITH STANDARD DRAWINGS 304 & 305. BACKFILL AND COMPACTION REQUIREMENT FOR STREET CROWNING SHALL EXTEND TWO (2) FEET BACK OF CURB.

8.10 ALL WATER DISTRIBUTION SYSTEM LINES, EXCEPT DEAD END FOR FIRE HYDRANTS ONLY, SHALL BE LOOPED TO PROVIDE CIRCULATION.

8.11 DISTRIBUTION LINES SMALLER THAN FOUR (4) INCHES SHALL NOT BE INSTALLED.

8.12 FIRE HYDRANTS:

A. FIRE HYDRANTS SHALL BE A MINIMUM 5 1/4 INCH NOZZLE TYPE AND OF THE KENNEDY, MUELLER, OR AMERICAN DARLING BRAND NAME.

B. EACH HYDRANT SHALL BE SET WITH THE STREAMER NOZZLE FACING THE STREET AND WITH A MINIMUM CLEARANCE OF EIGHTEEN (18) INCHES ABOVE THE FINISHED GRADE.

C. ALL EXPOSED PORTIONS OF FIRE HYDRANTS SHALL BE PAINTED WITH A SAFETY YELLOW ENAMEL AS MANUFACTURED BY GLIDDEN OR DUPONT.

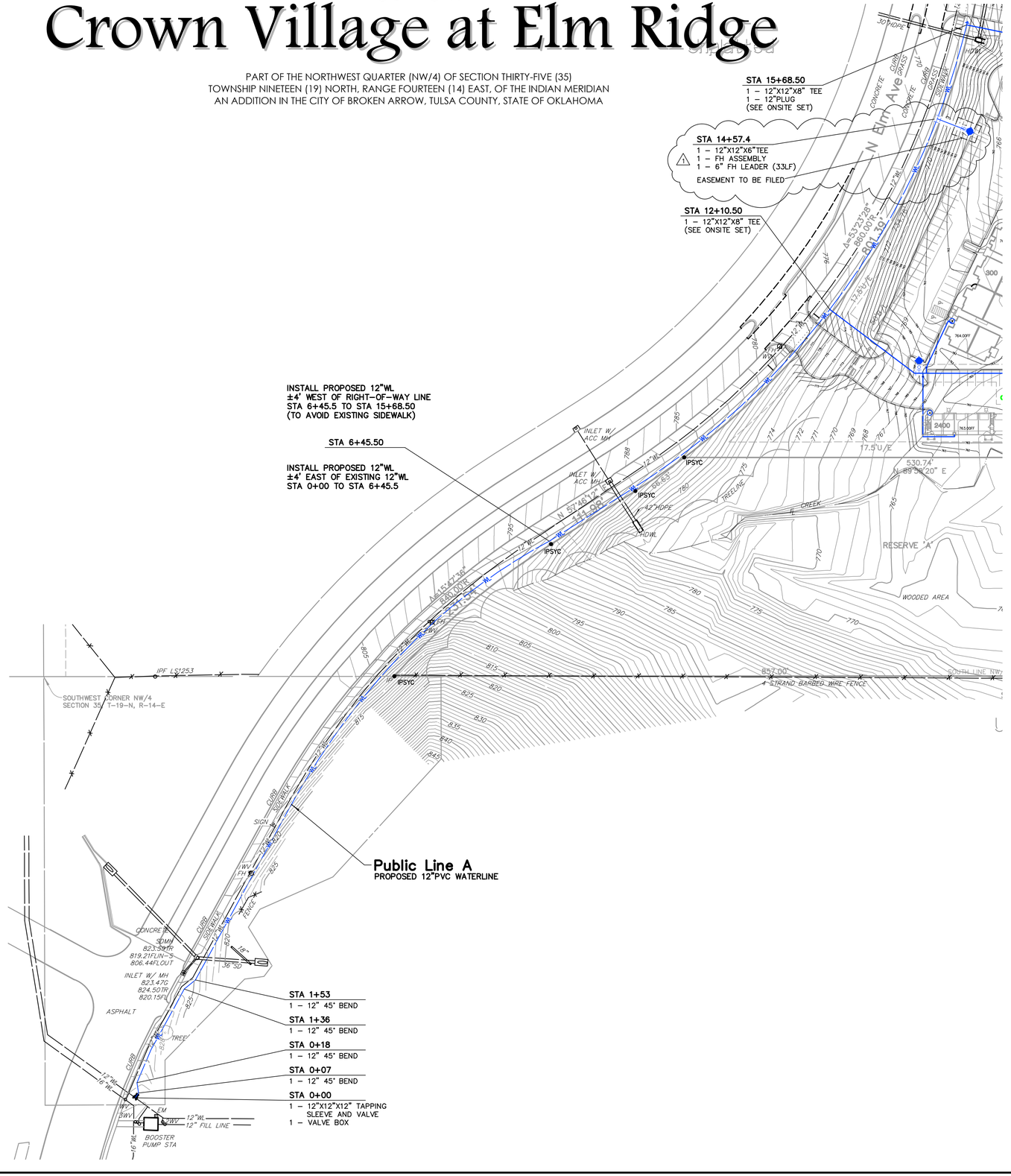
8.13 WHEN WORKING IN OR ADJACENT TO EXISTING SUBDIVISIONS ONLY ONE (1) DAYS WORTH OF TRENCH MAY BE OPEN AT A GIVEN TIME. THIS REQUIREMENT MAY BE MODIFIED, IN WRITING BY THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT DIRECTOR, FOR A SPECIFIC PROJECT.

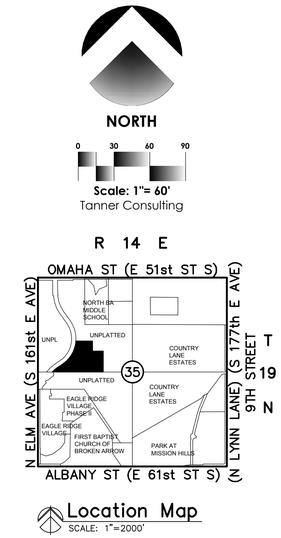
8.14 ROAD CLOSURES MUST BE COORDINATED A MINIMUM OF TWENTY FOUR (24) HOURS IN ADVANCE. ROADS WILL NOT BE CLOSED FOR OVER EIGHT (8) HOURS WITHOUT WRITTEN PERMISSION FROM THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT DIRECTOR.

8.15 ALL FITTING BENDS, TEES AND FIRE HYDRANTS SHALL HAVE MECHANICAL JOINT RESTRAINTS, WITH MIDCO GRIP RINGS.

Legend

B/L	BUILDING LINE
FDC	FIRE DEPARTMENT CONNECTION
FF	FINISH FLOOR ELEVATION
FH	FIRE HYDRANT
FL	FLOWLINE
HDWL	HEADWALL
IP	IRON PIN
LF	LINEAR FOOT
MH	MANHOLE
PVC	POLYVINYL CHLORIDE PIPE
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
TG	TOP OF GRATE
TR	TOP OF RIM
WL	WATERLINE
WM	WATER METER
WV	WATER VALVE
U/E	UTILITY EASEMENT





Location Map
SCALE: 1"=2000'

OWNER:
Crown Village at Elm Ridge, LLC
AN OKLAHOMA LIMITED LIABILITY COMPANY
CONTACT: ED LEINBACH
2240 E. 49th Street, Suite 100
Tulsa, Oklahoma 74105
Phone: (918)743-2100

Offsite Waterline Index

SHEET NUMBER - NAME
1 - OFFSITE WATERLINE COVER
2 - OFFSITE WATERLINE PROFILE

Benchmark

VERTICAL CONTROL: ADS CAP "BA41"
ELEVATION = 792.44 (NGVD 1929)
APPROXIMATELY 2644 FEET NORTH AND 2820 FEET WEST OF THE POINT OF BEGINNING FOR THE TRACT BEING PLATTED AS "CROWN VILLAGE AT ELM RIDGE".

General Notes

1.1 TOPOGRAPHIC INFORMATION SHOWN HEREIN WAS PROVIDED BY TANNER CONSULTING, LLC.

1.2 WHEREVER THE WORD "CITY" APPEARS HEREIN THE SAME SHALL CONCLUSIVELY BE DEEMED TO MEAN THE CITY OF BROKEN ARROW, OKLAHOMA UNLESS THE CONTEXT CLEARLY DICTATES OTHERWISE.

1.3 THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY WORK ORDERS AND PERMITS FROM THE CITY, INCLUDING PROVISION OF BONDS AND INSURANCE AS REQUIRED.

1.4 THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEERING AND CONSTRUCTION DEPARTMENT AT LEAST 24 HOURS PRIOR TO START OF CONSTRUCTION.

1.5 ONE-TIME CONSTRUCTION STAKING SHALL BE PROVIDED BY THE OWNER. ANY RESTAKING WILL BE REQUESTED AND PAID FOR BY THE CONTRACTOR.

1.6 TESTING SHALL BE PROVIDED BY THE OWNER. ANY FAILING TESTS SHALL BE RETESTED AT THE CONTRACTOR'S EXPENSE FOLLOWING CORRECTIVE ACTIONS.

Tract Description of Property being served

BEING PLATTED AS "CROWN VILLAGE AT ELM RIDGE", AN ADDITION IN THE CITY OF BROKEN ARROW, TULSA COUNTY, STATE OF OKLAHOMA.

CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

REGISTERED PROFESSIONAL ENGINEER
DAN EDWIN TANNER
13090
OKLAHOMA
4-12-2013

Tanner Consulting, LLC
Land Planning
Civil Engineering
Land Surveying
Architecture
Interior Design
5323 SOUTH LEWIS AVENUE
TULSA, OKLAHOMA 74105
PHONE (918)745-9929
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CERTIFICATE OF AUTHORIZATION NO. CA 2661 EXP. 6/30/2015

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MILESTONE	DATE
MOVE FH	9/12/13
PLOT DATE: 9/12/13	

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARDS AND SPEC'S (INCLUDING O.D.O.T. 2009 EDITION).

Crown Village at Elm Ridge

Part of the NW/4, Section 35, T-19-N, R-14-E

Broken Arrow, Oklahoma

PROJECT: 12060
ISSUE DATE: 8/9/2013
ATLAS PAGE NO: 000

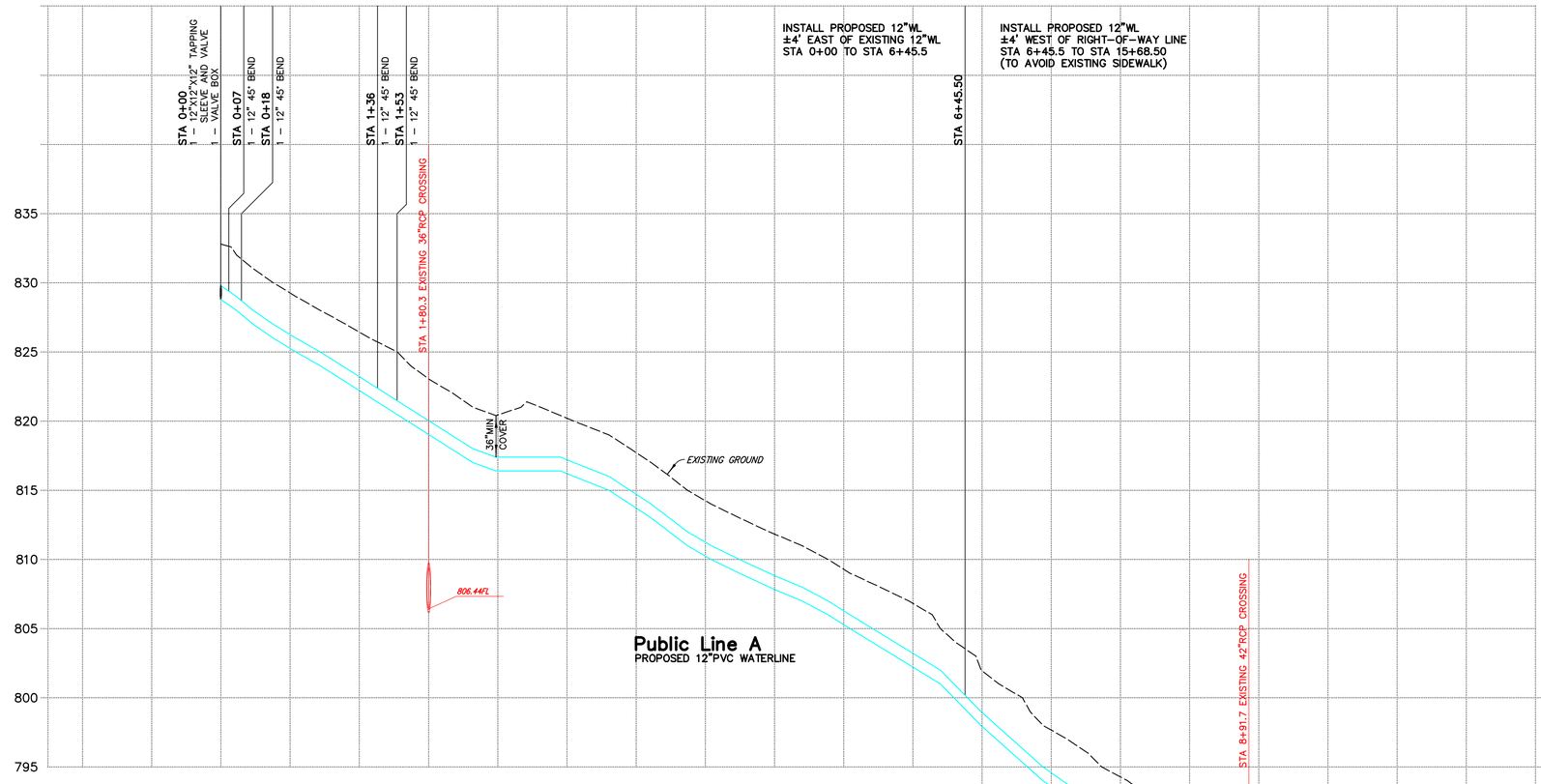
PLAN SCALE: (H) 1"=60'
(V) N/A

Offsite Waterline Cover

1

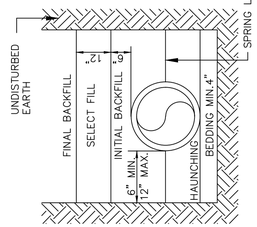
OF 02

P:\2012\12060\SHEETS\12060OFFWLCV.DWG, I, 9/12/2013 2:56:57 PM, STORBETT, I:\, TANNER CONSULTING, LLC, OK CA 2661 Exp 6/30/2015



PAVED AREAS		
P V C	DUCTILE IRON	CONCRETE
CRUSHED ROCK	CRUSHED ROCK	CRUSHED ROCK
CRUSHED ROCK	CRUSHED ROCK	CRUSHED ROCK
3/8" CHIPS	3/8" CHIPS	3/8" CHIPS
3/8" CHIPS	3/8" CHIPS	3/8" CHIPS
CLEAN RIVER SAND		

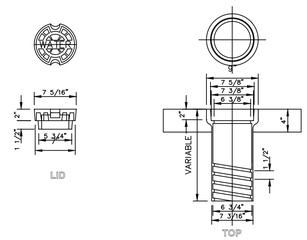
NON-PAVED AREAS		
P V C	DUCTILE IRON	CONCRETE
EXCAVATED MATERIAL	EXCAVATED MATERIAL	EXCAVATED MATERIAL
SAND	SAND	SAND
SAND	SAND	SAND
SAND	SAND	SAND
CLEAN RIVER SAND		



NOTES:
1. SELECT FILL CONSISTS OF EXCAVATED MATERIALS CONTAINING NO ROCKS LARGER THAN 2 INCHES.
2. CRUSHED ROCK SHALL BE ODOT TYPE A BASE
3. BEDDING REQUIRED ONLY FOR ROCK EXCAVATION.
4. COMPACTION REQUIREMENTS:
   a. NON- PAVED AREAS: 90% MAXIMUM STANDARD PROCTOR DENSITY FOR COHESIONLESS SOILS AND 85% FOR COHESIVE SOILS.
   b. PAVED AREAS: 95% MAXIMUM STANDARD PROCTOR DENSITY FOR COHESIONLESS SOILS.
5. FILLS OVER 10 FEET DEEP OF MATERIAL IN THE AREA FROM SELECT FILL TO BEDDING SHALL BE CRUSHED ROCK OR FLOWABLE FILL.
6. FLOWABLE FILL MAY BE SUBSTITUTED FOR ALL MATERIALS IN ROAD CROSSING.
7. PAVED AREA INCLUDES 2' BEHIND CURB.

WATER PIPE BEDDING DETAIL

STANDARD DRAWING: STD W 01



4" - 12" VALVE BOX DETAIL

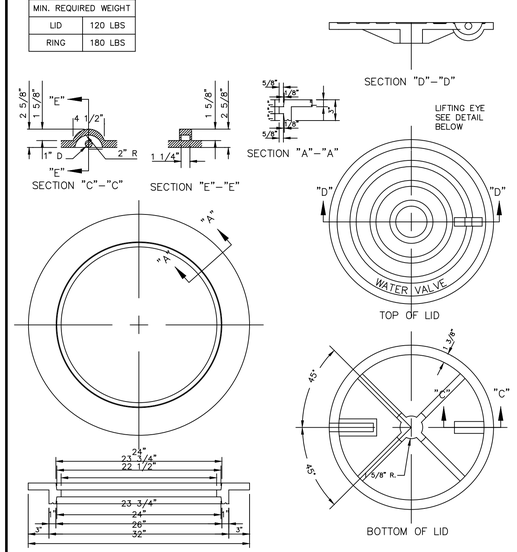
REQUIRED WEIGHTS	
LID	15 LBS
TOP (16")	30 LBS
BOTTOM (24")	35 LBS

NOTES:
1. WATER LINE CONTRACTOR TO PLACE 2 FOOT SQUARE CONCRETE PAD AROUND EACH WATER VALVE AFTER FINAL GRADING HAS BEEN COMPLETED AND TRENCHES HAVE SETTLED.
2. VALVE BOXES REQUIRING OVER 2 ADDITIONAL BOTTOM SECTIONS SHALL BE EXTENDED USING C900 DR14 PVC PIPE WITH A BOTTOM AND TOP SECTION PLACED ON TOP OF THE C900 DR14 PVC PIPE.

VALVE BOX DETAIL

STANDARD DRAWING: STD W 04

MIN. REQUIRED WEIGHT	
LID	120 LBS
RING	180 LBS



FRAME AND LID FOR VALVE VAULTS

STANDARD DRAWING: STD W 05

Benchmark

ELEVATION CONTROL: ADS CAP "BA41" ELEVATION = 792.44 (NGVD 1929) APPROXIMATELY 2644 FEET NORTH AND 2820 FEET WEST OF THE POINT OF BEGINNING FOR THE TRACT BEING PLATTED AS "CROWN VILLAGE AT ELM RIDGE".

COLOR INDEX

WATERLINE — WL —

STORM SEWER

UTILITY LINES LOCATED UNDER PAVED STREETS SHALL BE LAID IN TYPE A AGGREGATE BASE AND THE TRENCH COMPLETELY FILLED TO SUBGRADE WITH TYPE A AGGREGATE BASE COMPACTED TO 95% STANDARD DENSITY, OR FLOWABLE FILL, AS SHOWN ON PROFILES.

CASE NUMBER: PT13-101
PUD NUMBER: 216
DETENTION DETERMINATION NUMBER: DD-050613-06

REGISTERED PROFESSIONAL ENGINEER
DAN EDWIN TANNER
13090
OKLAHOMA
9-12-2013

Tanner Consulting, LLC
Land Planning
Civil Engineering
Land Surveying
Architecture
Interior Design
5323 SOUTH LEWIS AVENUE
TULSA, OKLAHOMA 74105
PHONE (918)745-9929
FAX (918)745-9969
www.tannerconsulting-llc.com
CERTIFICATE OF AUTHORIZATION NO.
CA 2661 EXP. 6/30/2015

BEFORE YOU DIG 811 OKIE CALL OKIE

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MILESTONE	DATE
MOVE FH	9/12/13
PLOT DATE: 9/12/13	

ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH CURRENT CITY OF BROKEN ARROW STANDARDS AND SPEC'S (INCLUDING O.D.O.T. 2009 EDITION).

Crown Village at Elm Ridge

Part of the NW/4, Section 35, T-19-N, R-14-E

Broken Arrow, Oklahoma

PROJECT: 12060
ISSUE DATE: 8/9/2013
ATLAS PAGE NO: 000

PLAN SCALE: (H) 1"=60'
(V) 1"=5'

Offsite Waterline Profile

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