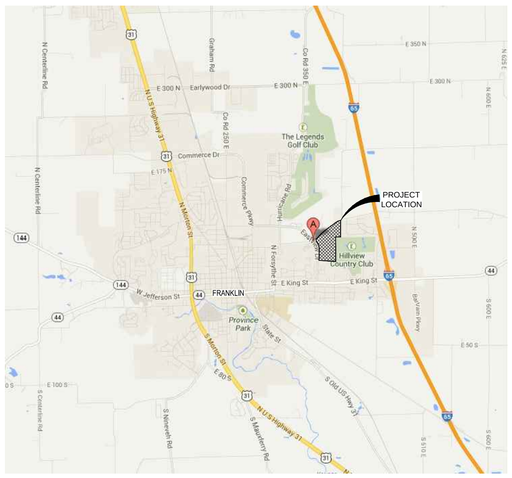
FINAL CONSTRUCTION PLANS

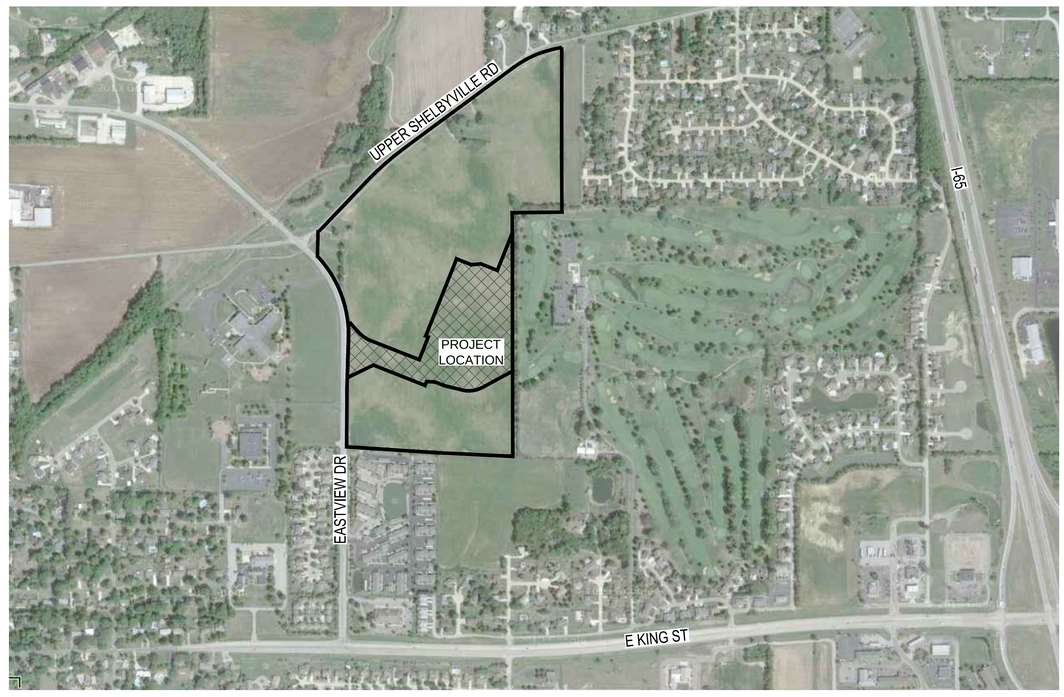
HOMESTEADS AT HILLVIEW - SECTION 2

FRANKLIN, INDIANA



VICINITY MAP

NO SCALE



LOCATION MAP

NO SCALE

OWNER/DEVELOPER

HOMESTEAD DEVELOPERS, LLC
1521 W. DEMAREE ROAD
GREENWOOD, IN 46143
PHONE: (317) 691-3515
CONTACT: JOHN GRIMMER/GENE PERKINS

ENGINEER

CROSSROAD ENGINEERS, PC
3417 SHERMAN DRIVE
BEECH GROVE, IN 46107
PHONE: (317) 780-1555
CONTACT: GREG J. ILKO

DELEVOPMENT MANAGER

DUKE HOMES, INC.
4300 N 725 W
BARGERSVILLE, IN 46106
PHONE: (317) 422-9000
CONTACT: MICHAEL J. DUKE

PLAN INDEX

SHEET #	SUBJECT
100	TITLE SHEET
1 AND 2 OF 2	SECONDARY PLAT – SECTION 2
200	TOPOGRAPHICAL SURVEY & DEMOLITION PLAN
300–301	SITE DIMENSION PLAN
302	STREET SYSTEM PLAN AND STREET SIGNAGE DETAILS
400–401	UTILITY PLAN
402–403	DRAINAGE PLAN
404	STRUCTURE DATA TABLE
500–501	GRADING PLAN
502	INTERSECTION GRADING PLAN
600–601	ROAD PLAN AND PROFILE
900–901	EROSION CONTROL PLAN
902–903	EROSION CONTROL DETAILS
1000	MISCELLANEOUS DETAILS
1100	SPECIFICATIONS

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
3417 SHERMAN DR. BEECH GROVE, IN 46107 (317) 780-1555

TITLE SHEET

HOMESTEADS AT HILLVIEW - SECTION 2

JOB No.	.	DRAWN	LMC	CHECKED	TEN
DATE	JULY 17, 2014	DESIGNED	WFH	APPR.	GJI

GREGORY J. ILKO REGISTERED NO. 10300059 STATE OF INDIANA PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	BY	APPR.
1				
2				
3				
4				
5				
6				
7				
8				
9				

SHEET 100

DIRECTORY PATH : R:\Active\John Grimmer\Hillview CC Property\CAD\PHASE 2 - PLANS
FILENAME : 100 TITLE.dwg
DATE/USER : 7/17/2014 11:59 PM / Lcox

DEVELOPMENT MANAGER
DUKE HOMES, INC.
4300 N 725 W
BARGERSVILLE, IN 46106
PHONE: (317) 422-9000
CONTACT: MICHAEL J. DUKE

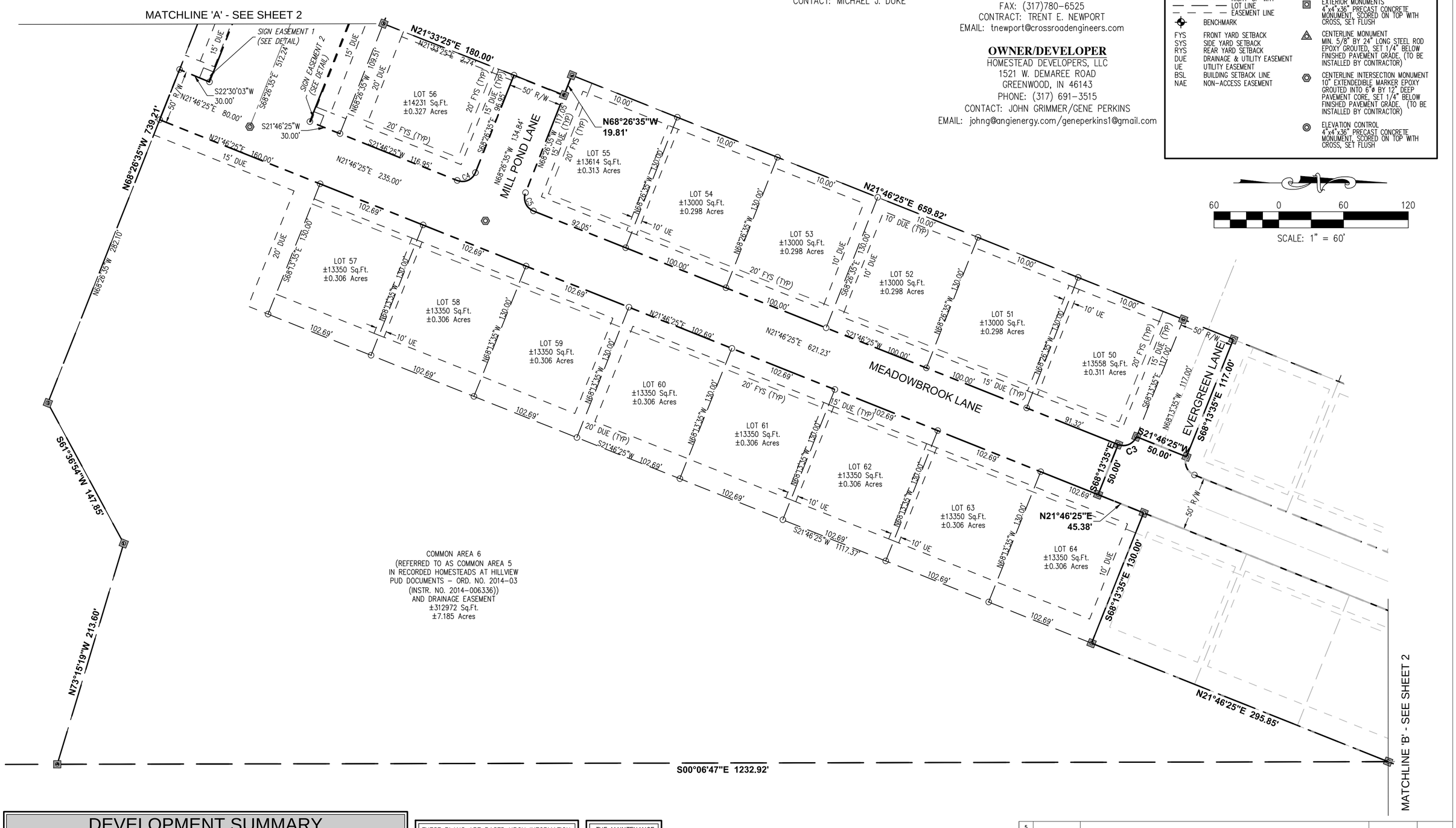
SURVEYOR
CROSSROAD ENGINEERS, PC
3417 SHERMAN DRIVE
BEECH GROVE, IN 46107
PHONE: (317)780-1555
FAX: (317)780-6525
CONTRACT: TRENT E. NEWPORT
EMAIL: tnewport@crossroadengineers.com

OWNER/DEVELOPER
HOMESTEAD DEVELOPERS, LLC
1521 W. DEMAREE ROAD
GREENWOOD, IN 46143
PHONE: (317) 691-3515
CONTACT: JOHN GRIMMER/GENE PERKINS
EMAIL: johng@angienergy.com/geneperkins1@gmail.com

LEGEND

PROPERTY LINE	INTERIOR MARKER MIN. 5/8"ø BY 24" LONG REBAR SET FLUSH
SECTION LINE	EXTERIOR MONUMENTS 4"x4"x36" PRECAST CONCRETE MONUMENT, SCORED ON TOP WITH CROSS, SET FLUSH
ADJOINER LINE	CENTERLINE MONUMENT MIN. 5/8" BY 24" LONG STEEL ROD EPOXY GROUTED, SET 1/4" BELOW FINISHED PAVEMENT GRADE. (TO BE INSTALLED BY CONTRACTOR)
RIGHT-OF-WAY	CENTERLINE INTERSECTION MONUMENT 10" EXTENDEDIBLE MARKER EPOXY GROUTED INTO 6"ø BY 12" DEEP PAVEMENT CORE, SET 1/4" BELOW FINISHED PAVEMENT GRADE. (TO BE INSTALLED BY CONTRACTOR)
LOT LINE	ELEVATION CONTROL 4"x4"x36" PRECAST CONCRETE MONUMENT, SCORED ON TOP WITH CROSS, SET FLUSH
EASEMENT LINE	
BENCHMARK	
FYS FRONT YARD SETBACK	
SYS SIDE YARD SETBACK	
RYS REAR YARD SETBACK	
DUE DRAINAGE & UTILITY EASEMENT	
UE UTILITY EASEMENT	
BSL BUILDING SETBACK LINE	
NAE NON-ACCESS EASEMENT	

SCALE: 1" = 60'



DEVELOPMENT SUMMARY

APPROVED CURRENT ZONING:	PUD	
FRONT YARD SETBACK:	LOCAL STREET – 20' FROM RIGHT-OF-WAY	
SIDE YARD SETBACK:	HOMESTEAD	10' (PRIMARY STRUCTURE) (MEASURED FROM ℞ AND/OR LOT LINE)
	HOMESTEAD	5' (ACCESSORY STRUCTURE) (MEASURED FROM ℞ AND/OR LOT LINE)
REAR YARD SETBACK:	HOMESTEAD	25' (PRIMARY STRUCTURE) (MEASURED FROM ℞ AND/OR LOT LINE)
	HOMESTEAD	5' (ACCESSORY STRUCTURE) (MEASURED FROM ℞ AND/OR LOT LINE)
TOTAL NUMBER OF LOTS:	HOMESTEAD	15 LOTS (LOTS 50-64)
TOTAL DEVELOPMENT AREA:	13.137 AC. (EXCLUDING RIGHT-OF-WAY)	
TOTAL DEDICATED R/W:	2.786 AC.	

THESE PLANS ARE BASED UPON INFORMATION FROM AN ALTA/ACSM LAND TITLE SURVEY PERFORMED BY CKW LAND SURVEYING, INC. WITH WORK ORDER NO. 130100 AND DATED JUNE 7, 2013 AND SURVEY INFORMATION PROVIDED BY JERRY WIGGINS SURVEYING.

THE MAINTENANCE OF ANY COMMON AREAS ARE THE RESPONSIBILITY OF THE LOT OWNER'S ASSOCIATION.

CURVE DATA TABLES ON SHEET 3

BENCHMARK INFORMATION

BENCHMARK – JON 6 – ELEVATION 721.534 FEET
IN JOHNSON COUNTY, FRANKLIN QUADRANGLE, IN THE SOUTHEAST QUARTER OF SECTION 14, TOWNSHIP 12 NORTH, RANGE 4 EAST, SECOND PRINCIPAL MERIDIAN; AT FRANKLIN; 0.2 NORTH ALONG FORSYTHE STREET FROM ITS INTERSECTION WITH STATE ROAD 44 TO AN ELECTRIC TOWER; SET IN THE TOP OF THE SOUTHWEST CONCRETE SUPPORT OF THE ELECTRIC POWER TAKE OFF TOWER, 110 FEET EAST OF THE CENTERLINE OF FORSYTHE STREET, 50 FEET SOUTH OF HURRICANE CREEK, 1.0 FOOT ABOVE THE GROUND; AN INDIANA FLOOD CONTROL AND WATER RESOURCES COMMISSION BRASS CONTROL STATION TABLET, STAMPED "JON 6"

FLOODPLAIN INFORMATION

THE PROPERTY PLOTS BY SCALE AS BEING IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP (FIRM) FOR JOHNSON COUNTY, INDIANA, COMMUNITY PANEL NO. 18081 C 0232D, DATED AUGUST 2, 2007. THE ACCURACY OF ALL FLOOD HAZARD DATA SHOWN ON THIS PROJECT IS SUBJECT TO MAP SCALE UNCERTAINTY AND TO ANY OTHER UNCERTAINTY IN LOCATION OF ELEVATION ON THE RECORDED FLOOD INSURANCE RATE MAP.

NO.	DATE	REVISIONS	BY	APPR.
5				
4				
3				
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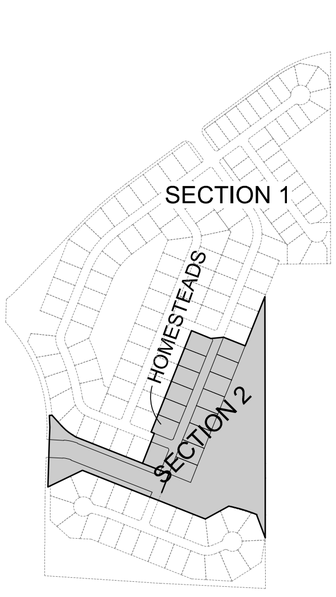
1				

HOMESTEADS AT HILLVEW - SECTION 2
MAJOR SUBDIVISION
SECONDARY PLAT

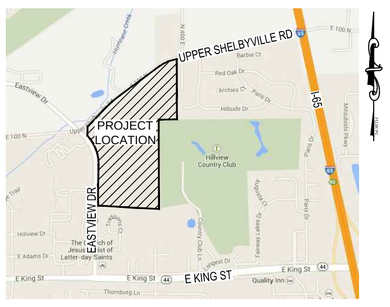
A PART OF THE SOUTHEAST QUARTER OF SECTION 12, AND A PART OF THE NORTHEAST QUARTER OF SECTION 13, ALL IN TOWNSHIP 12 NORTH, RANGE 4 EAST OF THE SECOND PRINCIPAL MERIDIAN, IN JOHNSON COUNTY, INDIANA

JOB No. .	DRAWN LMC	CHECKED TEN		
DATE JULY 17, 2014	DESIGNED WFH	APPR. GJI		SHEET 1 of 3

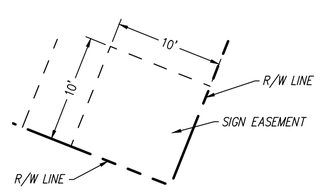
CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
3417 SHERMAN DR. BEECH GROVE, IN 46107 (317) 780-1555



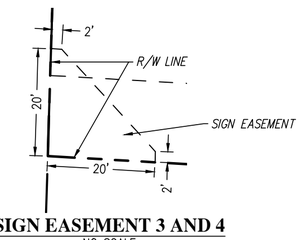
COMPOSITE MAP
NOT TO SCALE



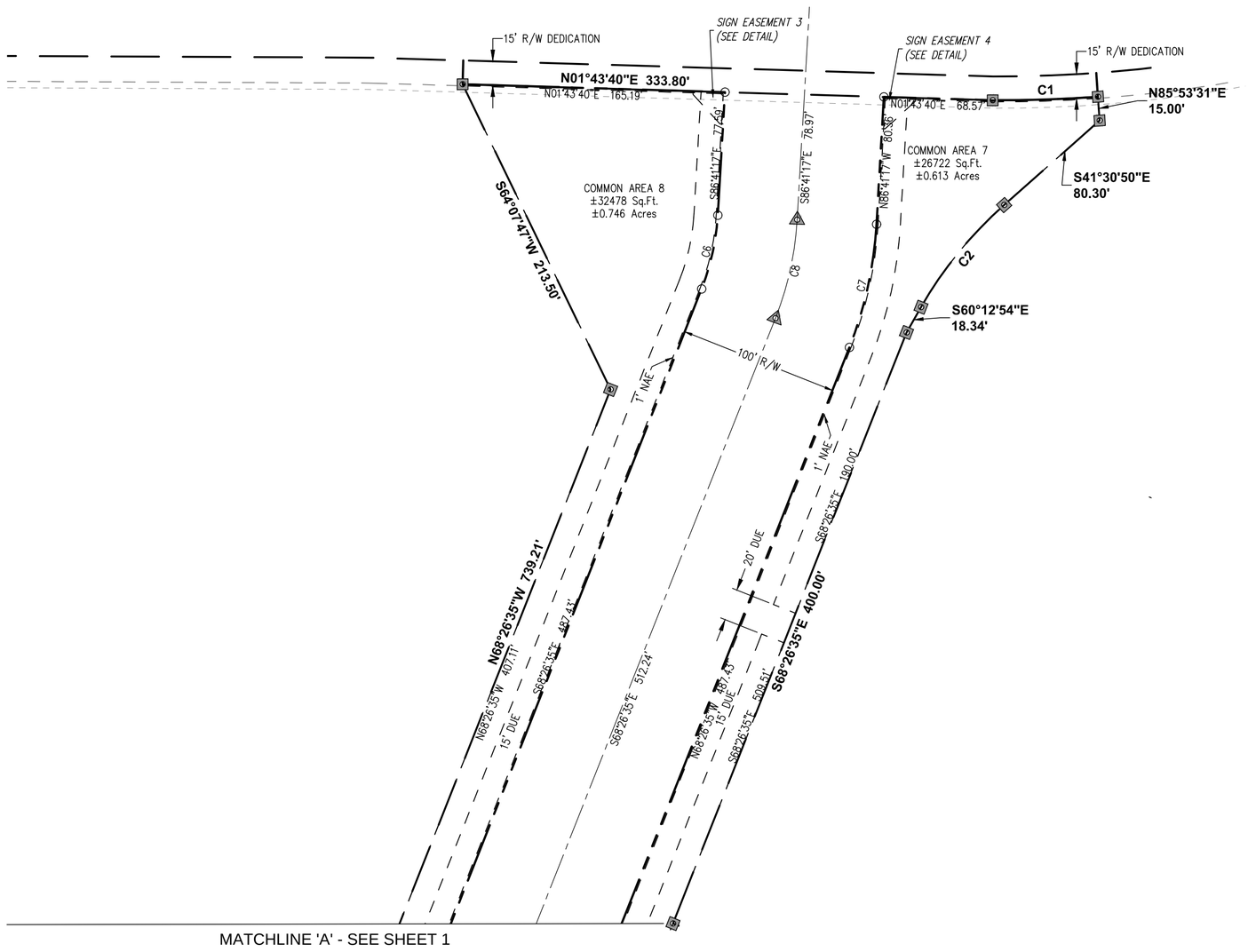
LOCATION MAP
NO SCALE

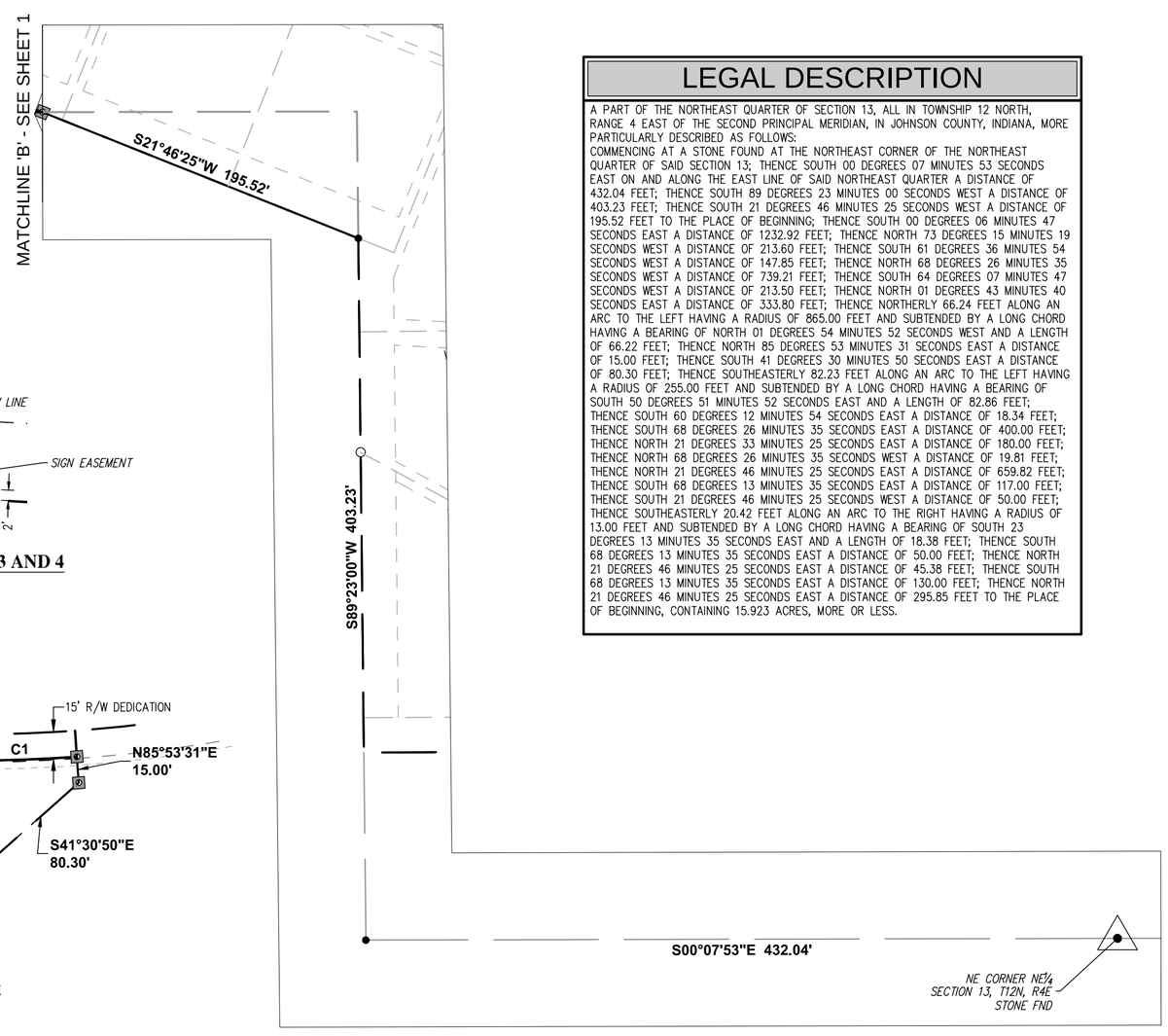


SIGN EASEMENT 1 AND 2
NO SCALE



SIGN EASEMENT 3 AND 4
NO SCALE





LEGAL DESCRIPTION

A PART OF THE NORTHEAST QUARTER OF SECTION 13, ALL IN TOWNSHIP 12 NORTH, RANGE 4 EAST OF THE SECOND PRINCIPAL MERIDIAN, IN JOHNSON COUNTY, INDIANA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:
COMMENCING AT A STONE FOUND AT THE NORTHEAST CORNER OF THE NORTHEAST QUARTER OF SAID SECTION 13; THENCE SOUTH 00 DEGREES 07 MINUTES 53 SECONDS EAST ON AND ALONG THE EAST LINE OF SAID NORTHEAST QUARTER A DISTANCE OF 432.04 FEET; THENCE SOUTH 89 DEGREES 23 MINUTES 00 SECONDS WEST A DISTANCE OF 403.23 FEET; THENCE SOUTH 21 DEGREES 46 MINUTES 25 SECONDS WEST A DISTANCE OF 195.52 FEET TO THE PLACE OF BEGINNING; THENCE SOUTH 00 DEGREES 06 MINUTES 47 SECONDS EAST A DISTANCE OF 1232.92 FEET; THENCE NORTH 73 DEGREES 15 MINUTES 19 SECONDS WEST A DISTANCE OF 213.60 FEET; THENCE SOUTH 61 DEGREES 36 MINUTES 54 SECONDS WEST A DISTANCE OF 147.85 FEET; THENCE NORTH 68 DEGREES 26 MINUTES 35 SECONDS WEST A DISTANCE OF 739.21 FEET; THENCE SOUTH 64 DEGREES 07 MINUTES 47 SECONDS WEST A DISTANCE OF 213.50 FEET; THENCE NORTH 01 DEGREES 43 MINUTES 40 SECONDS EAST A DISTANCE OF 333.80 FEET; THENCE NORTHERLY 66.24 FEET ALONG AN ARC TO THE LEFT HAVING A RADIUS OF 865.00 FEET AND SUBTENDED BY A LONG CHORD HAVING A BEARING OF NORTH 01 DEGREES 54 MINUTES 52 SECONDS WEST AND A LENGTH OF 66.22 FEET; THENCE NORTH 85 DEGREES 53 MINUTES 31 SECONDS EAST A DISTANCE OF 15.00 FEET; THENCE SOUTH 41 DEGREES 30 MINUTES 50 SECONDS EAST A DISTANCE OF 80.30 FEET; THENCE SOUTHEASTERLY 82.23 FEET ALONG AN ARC TO THE LEFT HAVING A RADIUS OF 255.00 FEET AND SUBTENDED BY A LONG CHORD HAVING A BEARING OF SOUTH 50 DEGREES 51 MINUTES 52 SECONDS EAST AND A LENGTH OF 82.86 FEET; THENCE SOUTH 60 DEGREES 12 MINUTES 54 SECONDS EAST A DISTANCE OF 18.34 FEET; THENCE SOUTH 68 DEGREES 26 MINUTES 35 SECONDS EAST A DISTANCE OF 400.00 FEET; THENCE NORTH 21 DEGREES 33 MINUTES 25 SECONDS EAST A DISTANCE OF 180.00 FEET; THENCE NORTH 68 DEGREES 26 MINUTES 35 SECONDS WEST A DISTANCE OF 19.81 FEET; THENCE NORTH 21 DEGREES 46 MINUTES 25 SECONDS EAST A DISTANCE OF 659.82 FEET; THENCE SOUTH 68 DEGREES 13 MINUTES 35 SECONDS EAST A DISTANCE OF 117.00 FEET; THENCE SOUTH 21 DEGREES 46 MINUTES 25 SECONDS WEST A DISTANCE OF 50.00 FEET; THENCE SOUTHEASTERLY 20.42 FEET ALONG AN ARC TO THE RIGHT HAVING A RADIUS OF 13.00 FEET AND SUBTENDED BY A LONG CHORD HAVING A BEARING OF SOUTH 23 DEGREES 13 MINUTES 35 SECONDS EAST AND A LENGTH OF 18.38 FEET; THENCE SOUTH 68 DEGREES 13 MINUTES 35 SECONDS EAST A DISTANCE OF 50.00 FEET; THENCE NORTH 21 DEGREES 46 MINUTES 25 SECONDS EAST A DISTANCE OF 45.38 FEET; THENCE SOUTH 68 DEGREES 13 MINUTES 35 SECONDS EAST A DISTANCE OF 130.00 FEET; THENCE NORTH 21 DEGREES 46 MINUTES 25 SECONDS EAST A DISTANCE OF 295.85 FEET TO THE PLACE OF BEGINNING, CONTAINING 15.923 ACRES, MORE OR LESS.

THE MAINTENANCE OF ANY COMMON AREAS ARE THE RESPONSIBILITY OF THE LOT OWNER'S ASSOCIATION.

CURVE DATA TABLES ON SHEET 3

THESE PLANS ARE BASED UPON INFORMATION FROM AN ALTA/ACSM LAND TITLE SURVEY PERFORMED BY CKW LAND SURVEYING, INC. WITH WORK ORDER NO. 130100 AND DATED JUNE 7, 2013 AND SURVEY INFORMATION PROVIDED BY JERRY WIGGINS SURVEYING.

SCALE: 1" = 60'

NO.	DATE	REVISIONS	BY	APPR.
5				
4				
3				
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1				

HOMESTEADS AT HILLVEW - SECTION 2
MAJOR SUBDIVISION
SECONDARY PLAT

A PART OF THE SOUTHEAST QUARTER OF SECTION 12, AND A PART OF THE NORTHEAST QUARTER OF SECTION 13, ALL IN TOWNSHIP 12 NORTH, RANGE 4 EAST OF THE SECOND PRINCIPAL MERIDIAN, IN JOHNSON COUNTY, INDIANA

JOB No. .	DRAWN LMC	CHECKED TEN		
DATE JULY 17, 2014	DESIGNED WFH	APPR. GJI		SHEET 2 of 3

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
3417 SHERMAN DR. BEECH GROVE, IN 46107 (317) 780-1555

DEDICATION CERTIFICATE

WE THE UNDERSIGNED, JOHN E. GRIMMER LIVING TRUST AND HOMESTEAD DEVELOPERS, LLC, OWNERS OF REAL ESTATE SHOWN AND DESCRIBED HEREIN, DO HEREBY LAID OFF, PLATTED AND SUBDIVIDED, AND DO HEREBY LAY OFF, PLAT AND SUBDIVIDE SAID REAL ESTATE IN ACCORDANCE WITH THE WITHIN PLAT.

THE SUBDIVISION SHALL BE KNOWN AND DESIGNATED AS HOMESTEADS AT HILLVIEW – SECTION 1, AN ADDITION TO THE CITY OF FRANKLIN. ALL STREETS AND ALLEYS SHOWN AND NOT HERETOFORE DEDICATED, ARE HEREBY DEDICATED TO THE PUBLIC.

FRONT AND SIDE YARD BUILDING SETBACK LINES ARE HEREBY ESTABLISHED AS SHOWN ON THIS PLAT, BETWEEN WHICH LINES AND THE PROPERTY LINES OF THE STREET THERE SHALL BE ERECTED OR MAINTAINED NO BUILDING OR STRUCTURE.

THERE ARE STRIPS OF GROUND VARIOUS FEET IN WIDTH AS SHOWN ON THIS PLAT AND MARKED "EASEMENT", RESERVED FOR THE USE OF PUBLIC UTILITIES FOR THE INSTALLATION OF WATER AND SEWER MAINS, POLES, DUCTS, LINES AND WIRES, AND SIGNS SUBJECT AT ALL TIMES TO THE PROPER AUTHORITIES AND TO THE EASEMENT HEREIN RESERVED. NO PERMANENT OR OTHER STRUCTURES ARE TO BE ERECTED OR MAINTAINED UPON SAID STRIPS OF LAND, BUT OWNERS OF LOTS IN THIS SUBDIVISION SHALL TAKE THEIR TITLES SUBJECT TO THE RIGHTS OF THE PUBLIC UTILITIES.

ALL LANDS IN THE SUBDIVISION AND THE USE OF LANDS IN THIS SUBDIVISION BY PRESENT AND FUTURE OWNERS OR OCCUPANTS SHALL BE SUBJECT TO DECLARATION OF COVENANTS, AND THE RESTRICTIONS OF THE HOMESTEADS AT HILLVIEW – SECTION 1 OWNERSHIP ("DECLARATION") AS RECORDED IN INSTRUMENT NUMBER _____ ON THE ___ DAY OF _____, 20__ IN THE OFFICE OF THE RECORDER OF JOHNSON COUNTY, INDIANA. IN ADDITION.

NO IMPROVEMENTS, ALTERATIONS, REPAIRS, EXCAVATION, CHANGES IN GRADE OR OTHER WORK WHICH IN ANY WAY ALTERS THE EXTERIOR OF ANY LOT OR THE IMPROVEMENTS LOCATED THEREON FROM ITS NATURAL OR IMPROVED STATE EXISTING ON THE DATE SUCH LOT WAS FIRST CONVEYED IN FEE BY THE UNDERSIGNED TO AN OWNER SHALL BE MADE OR DONE WITHOUT THE PRIOR APPROVAL OF THE ARCHITECTURAL REVIEW BOARD, EXCEPT AS OTHERWISE EXPRESSLY PROVIDED IN THE ACCOMPANYING DECLARATION RECORDED IN CONJUNCTION WITH THIS PLAT, ON FILE AT THE JOHNSON COUNTY OFFICES.

THE FOREGOING COVENANTS, OR RESTRICTION, ARE TO RUN WITH THE LAND AND SHALL BE BINDING ON ALL PARTIES AND ALL PERSONS CLAIMING UNDER THEM UNTIL JANUARY 1, 2039, (A 25–YEAR PERIOD IS SUGGESTED), AT WHICH TIME SAID COVENANTS, OR RESTRICTIONS, SHALL BE AUTOMATICALLY EXTENDED FOR SUCCESSIVE PERIODS OF 10 YEARS UNLESS CHANGED BY VOTE OF A MAJORITY OF THE THEN OWNERS OF THE BUILDINGS COVERED BY THESE COVENANTS, OR RESTRICTIONS, IN WHOLE OR IN PART. INVALIDATION OF ANY ONE OF THE FOREGOING COVENANTS OR RESTRICTIONS, BY JUDGEMENT OR COURT ORDER, SHALL IN NO WAY AFFECT ANY OF THE OTHER COVENANTS OR RESTRICTIONS, WHICH SHALL REMAIN IN FULL FORCE AND EFFECT.

THE MAINTENANCE OF THE STORM DRAINAGE SYSTEM FOR THIS SUBDIVISION BY THE LOT OWNERS ASSOCIATION SHALL INCLUDE BUT SHALL NOT BE LIMITED TO THE MAINTENANCE OF ALL INLETS, OPEN DITCHES, PIPES, SWALES, MANHOLES AND DETENTION PONDS. THE COST AND EXPENSE OF SUCH MAINTENANCE SHALL BE ASSESSED AS PART OF THE GENERAL ASSESSMENT AGAINST THE OWNERS OF ALL LOTS IN THIS SUBDIVISION AS PROVIDED IN THE DECLARATION AND SHALL BE SECURED BY A LIEN AGAINST ALL LOTS IN THIS SUBDIVISION.

INVALIDATION OF ANY OF THE FOREGOING COVENANTS AND RESTRICTIONS BY JUDGMENT OR COURT ORDER SHALL IN NO WAY AFFECT REMAINING PORTIONS NOT SO AFFECTED.

THE RIGHT TO ENFORCE THESE PROVISIONS BY INJUNCTION, TOGETHER WITH THE RIGHT TO CAUSE THE REMOVAL, BY DUE PROCESS OF LAW, OF ANY STRUCTURE OR PART THEREOF ERECTED OR MAINTAINED IN VIOLATION HEREOF, IS HEREBY DEDICATED TO THE PUBLIC, AND RESERVED TO THE SEVERAL OWNERS OF THE SEVERAL LOTS IN THIS SUBDIVISION AND TO THEIR HEIRS AND ASSIGNS.

WITNESS OUR HANDS AND SEALS THIS _____ DAY OF _____, 2014.

_____
JOHN E. GRIMMER, (TRUSTEE)
JOHN E. GRIMMER LIVING TRUST

_____
JOHN E. GRIMMER (MEMBER)
HOMESTEAD DEVELOPERS, LLC

STATE OF INDIANA)
) SS:
COUNTY OF JOHNSON)

BEFORE ME THE UNDERSIGNED NOTARY PUBLIC, IN AND FOR THE COUNTY AND STATE, PERSONALLY APPEARED _____
FOR EACH SEPARATELY AND SEVERALLY ACKNOWLEDGED THE EXECUTION OF THE FOREGOING INSTRUMENT AS HIS OR HER VOLUNTARY ACT AND DEED, FOR THE PURPOSES THEREIN EXPRESSED.

WITNESS OUR HANDS AND SEALS THIS _____ DAY OF _____, 2014.

NOTARY PUBLIC _____

RESIDENT OF _____ COUNTY, INDIANA

MY COMMISSION EXPIRES: _____

CERTIFICATE OF APPROVAL

AFTER HAVING GIVEN PUBLIC NOTICE OF THE TIME, PLACE AND NATURE OF HEARING ON THE APPLICATION FOR PRIMARY APPROVAL OF THIS SUBDIVISION BY PUBLICATION IN A NEWSPAPER OF LOCAL CIRCULATION MORE THAN TEN (10) DAYS BEFORE THE HEARING THEREON, UNDER AUTHORITY PROVIDED BY THE GENERAL ASSEMBLY OF THE STATE OF INDIANA, THIS PLAT WAS GIVEN APPROVAL BY A MAJORITY OF THE MEMBERS OF THE FRANKLIN PLAN COMMISSION AT A MEETING HELD ON THE 18th DAY OF FEBRUARY, 2014.

CITY OF FRANKLIN PLAN COMMISSION BY:

_____
JIM MARTIN, PRESIDENT

_____
CHRISTOPHER PHILLIPS, SECRETARY

THIS PLAT IS HEREBY RECOMMENDED FOR ACCPTANCE BY THE CITY OF FRANKLIN BY:

_____
JOANNA MYERS, SENIOR PLANNER

_____
TRAVIS UNDERHILL, CITY ENGINEER

ENTERED FOR TAXATION THIS _____ DAY OF _____, 2014

_____ NO. _____
JAN RICHHART, COUNTY AUDITOR

RECEIVED FOR RECORD THIS _____ DAY OF _____, 2014
AT _____ AND RECORDED IN PLAT CABINET _____ SLIDE _____

_____
JILL JACKSON, COUNTY RECORDER

COPY RECEIVED BY COUNTY ASSESSOR

_____
MARK ALEXANDER, COUNTY ASSESSOR

BE IT RESOLVED BY THE BOARD OF PUBLIC WORKS AND SAFETY, CITY OF FRANKLIN, JOHNSON COUNTY, INDIANA, THAT THE DEDICATIONS SHOWN ON THIS PLAT ARE HEREBY APPROVED AND ACCEPTED THIS _____ DAY OF _____, 2014.

_____ _____
JOE McGUINNESS, MAYOR STEVE BARNETT, MEMBER

_____
BOB SWINEHAMER, MEMBER

ATTEST:

_____
JANET P. ALEXANDER, CLERK–TREASURER

SURVEYOR'S CERTIFICATE

I, TRENT E. NEWPORT, HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR, LICENSED IN COMPLIANCE WITH THE LAWS OF THE STATE OF INDIANA. THAT THIS PLAT WAS PREPARED FROM A SURVEY PERFORMED BY CKW LAND SURVEYING, INC DATED JUNE 7, 2013 AND THAT THIS SURVEY IS IN ACCORDANCE WITH TITLE 865, ARTICLE 1, AND RULE 12 OF INDIANA ADMINISTRATIVE CODE.

TRENT E. NEWPORT
REGISTERED
No. LS
29600021
STATE OF
INDIANA
LAND SURVEYOR

TRENT E. NEWPORT
INDIANA LAND SURVEYOR
No. LS 29600021
DATED: JULY 14, 2014

Curve Table

Curve #	Length	Radius	Chord Direction	Chord Length
C1	66.24'	865.00'	N01°54'52"W	66.22'
C2	83.23'	255.00'	S50°51'52"E	82.86'
C3	20.42'	13.00'	S23°13'35"E	18.38'
C4	20.47'	13.00'	S23°20'05"E	18.42'
C5	20.37'	13.00'	S66°39'55"W	18.35'
C6	47.77'	150.00'	S77°33'56"E	47.56'
C7	79.61'	250.00'	N77°33'56"W	79.27'

Curve Table: Alignments

Curve #	Length	Radius	Chord Direction	Chord Length
C8	63.69'	200.00'	S77°33'56"E	63.42'

NO.	DATE	REVISIONS	BY	APPR.
5				
4				
3				
2				
1				

HOMESTEADS AT HILLVEW - SECTION 2
MAJOR SUBDIVISION
SECONDARY PLAT

A PART OF THE SOUTHEAST QUARTER OF SECTION 12, AND A PART OF THE NORTHEAST QUARTER OF SECTION 13, ALL IN TOWNSHIP 12 NORTH, RANGE 4 EAST OF THE SECOND PRINCIPAL MERIDIAN, IN JOHNSON COUNTY, INDIANA

JOB No. .	DRAWN LMC	CHECKED TEN	
DATE JULY 17, 2014	DESIGNED WFH	APPR. GJI	SHEET 3 of 3

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
3417 SHERMAN DR. BEECH GROVE, IN 46107 (317) 780-1555

TOPOGRAPHICAL NOTES

1. CONTRACTOR SHALL DISPOSE OF ALL MATERIALS IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS.
2. UTILITIES ARE GRAPHICAL REPRESENTATION PER SURVEY AND MAPPING. CONTRACTOR SHALL FIELD VERIFY ALL UTILITIES PRIOR TO CONSTRUCTION.
3. WELLS AND SEPTIC SYSTEMS SHALL BE ABANDONED PER ALL FEDERAL, STATE, AND LOCAL REGULATIONS. A REPRESENTATIVE FROM THE JOHNSON COUNTY HEALTH DEPARTMENT SHALL BE PRESENT DURING REMOVAL OPERATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL HAZARDOUS MATERIAL TESTING AND REMOVAL (IF DEEMED NECESSARY) FOR THE EXISTING STRUCTURES.
4. CONTRACTOR SHALL COORDINATE WITH APPLICABLE UTILITY COMPANIES FOR SERVICE DIS-CONNECTIONS.

FLOODPLAIN INFORMATION

THE PROPERTY PLOTS BY SCALE AS BEING IN ZONE "AE" & "X" OF THE FLOOD INSURANCE RATE MAP (FIRM) FOR JOHNSON COUNTY, INDIANA, COMMUNITY PANEL NO. 18081 C 0232D AND 0231D, DATED AUGUST 2, 2007. THE ACCURACY OF ALL FLOOD HAZARD DATA SHOWN ON THIS PROJECT IS SUBJECT TO MAP SCALE UNCERTAINTY AND TO ANY OTHER UNCERTAINTY IN LOCATION OF ELEVATION ON THE RECORDED FLOOD INSURANCE RATE MAP.

BENCHMARK INFORMATION

BENCHMARK – JON 6 – ELEVATION 721.534 FEET
IN JOHNSON COUNTY, FRANKLIN QUADRANGLE, IN THE SOUTHEAST QUARTER OF SECTION 14, TOWNSHIP 12 NORTH, RANGE 4 EAST, SECOND PRINCIPAL MERIDIAN; AT FRANKLIN; 0.2 NORTH ALONG FORSYTHE STREET FROM ITS INTERSECTION WITH STATE ROAD 44 TO AN ELECTRIC TOWER; SET IN THE TOP OF THE SOUTHWEST CONCRETE SUPPORT OF THE ELECTRIC POWER TAKE OFF TOWER, 110 FEET EAST OF THE CENTERLINE OF FORSYTHE STREET, 50 FEET SOUTH OF HURRICANE CREEK, 1.0 FOOT ABOVE THE GROUND; AN INDIANA FLOOD CONTROL AND WATER RESOURCES COMMISSION BRASS CONTROL STATION TABLET, STAMPED "JON 6"

CONTROL POINT 6 – ELEVATION 733.51
CONTROL POINT 353 – ELEVATION 739.81
CONTROL POINT 354 – ELEVATION 736.18
CONTROL POINT 724 – ELEVATION 731.06
CONTROL POINT 726 – ELEVATION 735.95
CONTROL POINT 909 – ELEVATION 725.01
CONTROL POINT 1300 – ELEVATION 740.18
CONTROL POINT 1635 – ELEVATION 754.36
CONTROL POINT 1817 – ELEVATION 738.15

EXISTING LEGEND

POWERPOLE W/LIGHT
POWERPOLE GROUND
POWERPOLE UTILITY
POWERPOLE
LIGHTPOLE
ELECTRIC MANHOLE
ELECTRIC CABINET
GUYWIRE
TELEPHONE RISER
WATER METER
FIRE HYDRANT
WATER VALVE
SANITARY MANHOLE
SIGN
TREE
MONUMENT FOUND
CONTROL POINT FOUND

CONTOURS
PROPERTY LINE
SECTION LINE
RIGHT-OF-WAY
ADJOINER LINE
PAVEMENT LINE
EASEMENT LINE
FLOODPLAIN LINE
DITCH LINE
FARM FIELD FENCE
GUARDRAIL
ELECTRIC LINE
WATER LINE
STORM SEWER LINE
SANITARY SEWER LINE
TREE LINE

ASPHALT BUILDING CONCRETE REMOVAL/DEMOLISH

LEGAL DESCRIPTION

LAND DESCRIPTION : INSTRUMENT NUMBER 2013-027095
PART OF THE SOUTHEAST QUARTER OF SECTION 12 AND PART OR THE NORTHEAST QUARTER OF SECTION 13, ALL IN TOWNSHIP 12 NORTH, RANGE 4 EAST OF THE SECOND PRINCIPAL MERIDIAN IN THE CITY OF FRANKLIN, JOHNSON COUNTY, INDIANA, described as follows: BEGINNING at stone found at the Northeast corner of the Northeast Quarter of the Northeast Quarter of the said Section 13; Thence South 00 degrees 07 minutes 53 seconds East on and along the East line thereof 432.04 feet; Thence South 89 degrees 23 minutes 00 seconds West 476.12 feet to an iron rod found; Thence South 00 degrees 06 minutes 47 seconds East 1811.11 feet to an iron rod found; Thence North 87 degrees 11 minutes 04 seconds West 588.67 feet to an iron rod found; Thence North 86 degrees 14 minutes 12 seconds West 647.24 feet to an iron rod found at the East right-of-way line of Eastview Drive; Thence North 00 degrees 16 minutes 00 seconds East on and along the said East right-of-way line 438.05 feet to a right-of-way fence post; Thence North 01 degree 43 minutes 40 seconds East on and along the said right-of-way line 391.75 feet to an iron rod set; Thence Northwesterly on and along the said right-of-way line on a curve to the left which has a radius of 850.0 feet a curved distance of 646.40 feet, said arc being subtended by a chord bearing North 21 degrees 31 minutes 10 seconds West 630.94 feet to an iron rod set; Thence North 01 degree 40 minutes 58 seconds East on and along the said right-of-way line 181.00 feet to a P-K Nail set in the centerline of Upper Shelbyville Road; Thence Northeasterly on and along said centerline on a curve to the left which has a radius of 450.00 feet a curved distance of 40.32 feet said arc being subtended by a chord bearing North 46 degrees 12 minutes 19 second East 40.31 feet; Thence North 43 degree 3 minutes 17seconds East on and along the said centerline 482.28 feet to the beginning of a tangent curve; Thence Northeasterly on andalong the said centerline on a curve to the right which has a radius of 2136.39 feet a curved distance of 370.49 feet, said arc being subtended by a chord bearing North 48 degrees 36 minutes 22 seconds East 370.0 feet; Thence North 53 degrees 34 minutes 27 seconds EAst on and along the said centerline 343.77 feet to a P-K Nail set; Thence South 30 degrees 18 minutes 33 seconds East 200.00 feet; Thence North 53 degrees 34 minutes 27 seconds East 218.13 feet; Thence North 30 degrees 18 minutes 33 seconds West to a P-K Nail set in the centerline of Upper Shelbyville Road; Thence North 53 degrees 34 minutes 27 seconds East on and along the said centerline 453.20 feet to the beginning point of a tangent curve; Thence Northeasterly on and along the said centerline on a curve to the right which has a radius of 772.90 feet a curved distance of 323.41 feet, said arc being subtended by a chord bearing North 65 degrees 33 minutes 41 seconds East 321 05 feet; Thence North 77 degrees 32 minutes 55 seconds East on and along the said centerline 173.04 feet to a railroad spike found on the East line of the Southeast Quarter of the said Section 12; Thence South 00 degrees 00 minutes 14 seconds East on and along the East line 815.10 feet to the POINT OF BEGINNING, CONTAINING 81.4626 ACRES, MORE OR LESS, SUBJECT TO ALL LEGAL RIGHT-OF-WAY AND EASEMENTS.

MODERNIZED LEGAL DESCRIPTION:
A PART OF THE SOUTHEAST QUARTER OF SECTION 12, AND PART OF THE NORTHEAST QUARTER OF SECTION 13, ALL IN TOWNSHIP 12 NORTH, RANGE 4 EAST OF THE SECOND PRINCIPAL MERIDIAN, IN JOHNSON COUNTY, INDIANA, more particularly described as follows: Commencing at a stone found at the Northeast corner of the Northeast Quarter of the said Section 13; Thence South 00 degrees 07 minutes 53 seconds East on and along the East line thereof 432.04 feet; Thence South 89 degrees 23 minutes 00 seconds West 107.81 feet to an iron rod found at the POINT OF BEGINNING of this described tract; Thence continuing South 89 degrees 23 minutes 00 seconds West 368.31; Thence South 00 degrees 06 minutes 47 seconds East 1811.11 feet to an iron rod found; Thence North 87 degrees 11 minutes 04 seconds West 588.67 feet to an iron rod found; Thence North 86 degrees 14 minutes 12 seconds West 647.24 feet to an iron rod found at the East right-of-way of Eastview Drive; Thence North 00 degrees 16 minutes 00 seconds East on and along the said East right-of-way line 438.05 feet to a right-of-way fence post; Thence North 01 degrees 43 minutes 40 seconds East on and along the said right-of-way line 391.75 feet to an iron rod set; Thence Northwesterly on and along the said right-of-way on a curve to the left which has a radius of 850.00 feet a curved distance of 646.40 feet, said curve being subtended by a chord bearing and distance of North 21 degrees 31 minutes 10 seconds West 630.94 feet to an iron rod set; Thence North 01 degrees 40 minutes 58 seconds East on and along the said right-of-way line 181.00 feet to a "P-K" Nail found in the centerline of Upper Shelbyville Road; Thence Northeasterly on and along the said centerline on a curve to the left which has a radius of 450.00 feet a curved distance of 40.32 feet, said arc being subtended bya chord bearing and distance of North 46 degrees 12 minutes 19 seconds East 40.31 feet; Thence North 43 degrees 38 minutes 17 seconds East on and along the said centerline 482.28 feet; Thence Northeasterly on and along the said centerline on a curve to the right which has a radius of 2136.39 feet and curve distance of 370.48 feet, said curve being subtended by a chord bearing and distance of North 48 degrees 36 minutes 22 seconds East 370.02 feet; Thence North 53 degrees 34 minutes 27 seconds East on and along the said centerline 1015.10 feet; Thence Northeasterly on and along said centerline on a curve to the right which has a radius of 772.90 feet a curve distance of 323.40 feet, said curve being subtended by a chord bearing and distance of North 65 degrees 33 minutes 41 seconds East 321.05 feet; Thence North 77 degrees 32 minutes 55 seconds East on and along the said centerline 63.16 feet; Thence South 00 degrees 04 minutes 54 seconds West 791.25; Thence South 00 degrees 13 minutes 11 seconds East 433.11 feet to the POINT OF BEGINNING, CONTAINING 79.40 ACRES, MORE OR LESS.

CONTAINING 79.40 ACRES, MORE OR LESS, AND BEING SUBJECT TO ALL LEGAL EASEMENTS, RIGHTS OF WAY OR RESTRICTIONS OF RECORD OR OBSERVABLE.

ALSO;

BEING PART THE NORTHEAST QUARTER OF SECTION 13, ALL IN TOWNSHIP 12 NORTH, RANGE 4 EAST OF THE SECOND PRINCIPAL MERIDIAN, IN JOHNSON COUNTY, INDIANA, MORE PARTICULARLY DESCRIBED AS FOLLOWS: Commencing at a stone found at the Northeast corner of the Northeast Quarter of the said Section 13; Thence South 00 degrees 07 minutes 53 seconds East on and along the east line thereof 432.04 feet; Thence South 89 degrees 23 minutes 00 seconds West 107.81 feet to an iron rod found at the Southeast corner of a tract of land owned by Franklin Community School as shown on an A.L.T.A./A.C.S.M. Survey prepared by CKW Land Surveying, Inc. performed by Jeffery Kondy, Indiana Land Surveyor No. LS20100068 and dated June 7, 2013; Thence continuing South 89 degrees 23 minutes 00 seconds West, 295.42 feet to the PLACE OF BEGINNING; Thence South 21 degrees 46 minutes 25 seconds West, 195.52 feet to a place on a East line of said lands; Thence North 00 degree 06 minutes 47 seconds West, along a East line of said lands, 180.78 feet to a corner of said lands; Thence North 89 degrees 23 minutes 00 seconds East, along a South line of said lands, 72.89 feet to the PLACE OF BEGINNING.

CONTAINING 0.151 ACRES OR (6588 SQUARE FEET), MORE OR LESS, AND BEING SUBJECT TO ALL LEGAL EASEMENTS, RIGHTS OF WAY OR RESTRICTIONS OF RECORD OR OBSERVABLE.

CURVE DATA TABLE					
CURVE	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD DIRECTION	CHORD LENGTH
C1	43°34'19"	850.00'	646.40'	N21°31'10"W	630.94'
C2	05°08'03"	450.00'	40.32'	N46°12'19"E	40.31'
C3	09°56'10"	2136.39'	370.49'	N48°36'22"E	370.02'
C4	23°58'29"	772.90'	323.41'	N65°33'42"E	321.05'

UTILITIES

Note: Listed below are the Indiana Underground Plant Protection Services Contacts; Others not listed may exist.

SEWER
CITY OF FRANKLIN DPW
796 S. STATE STREET
FRANKLIN, IN 46131
PHONE: (317) 736-3648
CONTACT: RICK LITTLETON
EMAIL: rlittleton@franklin.in.gov

WATER
INDIANA AMERICAN WATER
425 W. MAIN STREET
MOORESVILLE, IN 46158
PHONE: (317) 831-3385
CONTACT: TROY BRYANT
EMAIL: james.bryant@amwater.com

CABLE
COMCAST
1600 W. VERNAL PIKE
BLOOMINGTON, IN 47404
PHONE: (812) 360-3090
CONTACT: STEVE MCARTOR
EMAIL: steve_mcartor@cable.comcast.com

GAS
VECTREN ENERGY
600 INDUSTRIAL DRIVE
FRANKLIN, IN 46131
PHONE: (317) 736-2907
CONTACT: BLAKE NIETEN
EMAIL: bnieten@vectren.com

FIRE DEPARTMENT
CITY OF FRANKLIN FIRE DEPARTMENT
1800 THORNBURG LANE
FRANKLIN, IN 46131
PHONE: (317) 736-3650
CONTACT: BRYNE PURSIFULL

ELECTRIC
DUKE ENERGY
2515 N. MORTON STREET
FRANKLIN, IN 46131
PHONE: (317) 736-2017
CONTACT: COREY HAMBLIN
EMAIL: corey.hamblin@duke-energy.com

NOTE: The underground utilities shown have been located from field survey information and existing drawings. The surveyor makes no guarantees that the underground utilities comprise all such utilities in the area, either in-service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated although the surveyor does certify that they are located as accurately as possible from information available. The surveyor has not physically located the underground utilities.

THESE PLANS ARE BASED UPON INFORMATION FROM AN ALTA/ACSM LAND TITLE SURVEY PERFORMED BY CKW LAND SURVEYING, INC. WITH WORK ORDER NO. 130100 AND DATED JUNE 7, 2013 AND SURVEY INFORMATION PROVIDED BY JERRY WIGGINS SURVEYING.

EXISTING UTILITY SIZE AND MATERIAL INFORMATION SHOWN ON THESE PLANS ARE PER THE BEST GRAPHICAL AND VISIBLE INFORMATION AVAILABLE. CONFLICTS MAY EXIST AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL SIZING AND MATERIAL INFORMATION PROVIDED. IF ACTUAL CONDITIONS DIFFER FROM THAT INFORMATION SHOWN ON THE PLANS, THE CONTRACTOR SHALL, PRIOR TO THE INSTALLATION OF ANY PROPOSED INFRASTRUCTURE, NOTIFY THE DESIGN ENGINEER IMMEDIATELY.

DIRECTORY PATH : R:\Active\John Grimmer\Hillview CC Property\CAD\PHASE 2 - PLANS
FILENAME : 200 TOPOGRAPICAL SURVEY.dwg
DATE/USER : 7/17/2014 11:47 AM / Lcox

TOPOGRAPHICAL SURVEY

HOMESTEADS AT HILLVIEW - SECTION 2

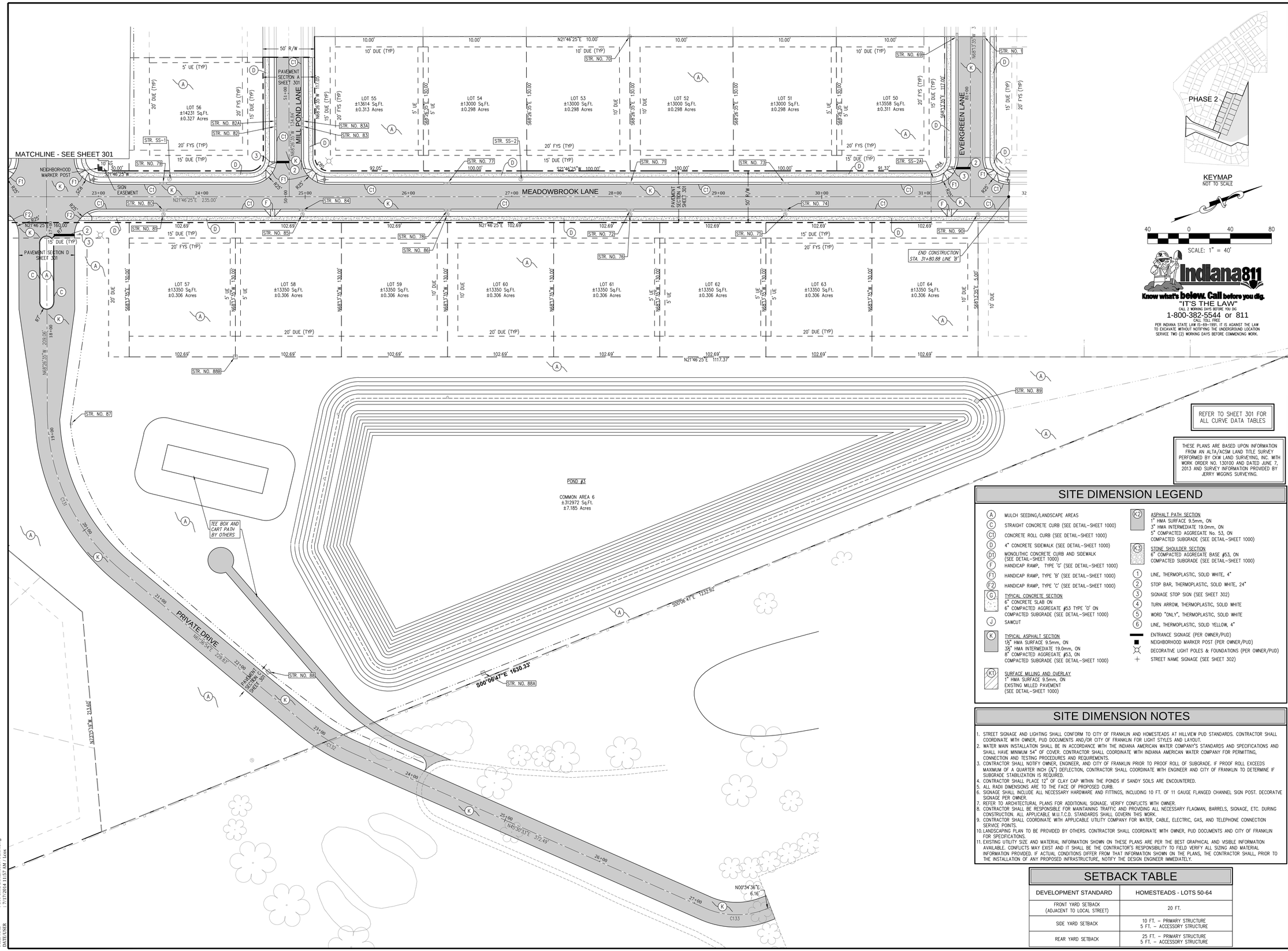
CROSSROAD ENGINEERS, PC — Transportation & Development Consultants

JOB No. | DATE JULY 17, 2014 | DRAWN LMC | CHECKED TEN | DESIGNED WFH | APPR. GJI

GREGORY J. ILKO REGISTERED NO. 10300059 STATE OF INDIANA PROFESSIONAL ENGINEER

REVISIONS — NO. | DATE | BY | APPR.

SHEET 200



REFER TO SHEET 301 FOR ALL CURVE DATA TABLES

THESE PLANS ARE BASED UPON INFORMATION FROM AN ALTA/ACSM LAND TITLE SURVEY PERFORMED BY CKW LAND SURVEYING, INC. WITH WORK ORDER NO. 130100 AND DATED JUNE 7, 2013 AND SURVEY INFORMATION PROVIDED BY JERRY WIGGINS SURVEYING.

SITE DIMENSION LEGEND

- (A) MULCH SEEDING/LANDSCAPE AREAS
- (C) STRAIGHT CONCRETE CURB (SEE DETAIL-SHEET 1000)
- (C1) CONCRETE ROLL CURB (SEE DETAIL-SHEET 1000)
- (D) 4" CONCRETE SIDEWALK (SEE DETAIL-SHEET 1000)
- (D1) MONOLITHIC CONCRETE CURB AND SIDEWALK (SEE DETAIL-SHEET 1000)
- (F) HANDICAP RAMP, TYPE 'G' (SEE DETAIL-SHEET 1000)
- (F1) HANDICAP RAMP, TYPE 'B' (SEE DETAIL-SHEET 1000)
- (F2) HANDICAP RAMP, TYPE 'C' (SEE DETAIL-SHEET 1000)
- (G) TYPICAL CONCRETE SECTION
  6" CONCRETE SLAB ON
  6" COMPACTED AGGREGATE #53 TYPE 'O' ON
  COMPACTED SUBGRADE (SEE DETAIL-SHEET 1000)
- (J) SAWCUT
- (K) TYPICAL ASPHALT SECTION
  1½" HMA SURFACE 9.5mm, ON
  3½" HMA INTERMEDIATE 19.0mm, ON
  8" COMPACTED AGGREGATE #53, ON
  COMPACTED SUBGRADE (SEE DETAIL-SHEET 1000)
- (K1) SURFACE MILLING AND OVERLAY
  1" HMA SURFACE 9.5mm, ON
  EXISTING MILLED PAVEMENT
  (SEE DETAIL-SHEET 1000)
- (K2) ASPHALT PATH SECTION
  1" HMA SURFACE 9.5mm, ON
  3" HMA INTERMEDIATE 19.0mm, ON
  5" COMPACTED AGGREGATE No. 53, ON
  COMPACTED SUBGRADE (SEE DETAIL-SHEET 1000)
- (K3) STONE SHOULDER SECTION
  6" COMPACTED AGGREGATE BASE #53, ON
  COMPACTED SUBGRADE (SEE DETAIL-SHEET 1000)
- (1) LINE, THERMOPLASTIC, SOLID WHITE, 4"
- (2) STOP BAR, THERMOPLASTIC, SOLID WHITE, 24"
- (3) SIGNAGE STOP SIGN (SEE SHEET 302)
- (4) TURN ARROW, THERMOPLASTIC, SOLID WHITE
- (5) WORD "ONLY", THERMOPLASTIC, SOLID WHITE
- (6) LINE, THERMOPLASTIC, SOLID YELLOW, 4"
- ENTRANCE SIGNAGE (PER OWNER/PUD)
- NEIGHBORHOOD MARKER POST (PER OWNER/PUD)
- DECORATIVE LIGHT POLES & FOUNDATIONS (PER OWNER/PUD)
- STREET NAME SIGNAGE (SEE SHEET 302)

SITE DIMENSION NOTES

1. STREET SIGNAGE AND LIGHTING SHALL CONFORM TO CITY OF FRANKLIN AND HOMESTEADS AT HILLVIEW PUD STANDARDS. CONTRACTOR SHALL COORDINATE WITH OWNER, PUD DOCUMENTS AND/OR CITY OF FRANKLIN FOR LIGHT STYLES AND LAYOUT.
2. WATER MAIN INSTALLATION SHALL BE IN ACCORDANCE WITH THE INDIANA AMERICAN WATER COMPANY'S STANDARDS AND SPECIFICATIONS AND SHALL HAVE MINIMUM 54" OF COVER. CONTRACTOR SHALL COORDINATE WITH INDIANA AMERICAN WATER COMPANY FOR PERMITTING, CONNECTION AND TESTING PROCEDURES AND REQUIREMENTS.
3. CONTRACTOR SHALL NOTIFY OWNER, ENGINEER, AND CITY OF FRANKLIN PRIOR TO PROOF ROLL OF SUBGRADE. IF PROOF ROLL EXCEEDS MAXIMUM OF A QUARTER INCH (¼") DEFLECTION, CONTRACTOR SHALL COORDINATE WITH ENGINEER AND CITY OF FRANKLIN TO DETERMINE IF SUBGRADE STABILIZATION IS REQUIRED.
4. CONTRACTOR SHALL PLACE 12" OF CLAY CAP WITHIN THE PONDS IF SANDY SOILS ARE ENCOUNTERED.
5. ALL RADII DIMENSIONS ARE TO THE FACE OF PROPOSED CURB.
6. SIGNAGE SHALL INCLUDE ALL NECESSARY HARDWARE AND FITTINGS, INCLUDING 10 FT. OF 11 GAUGE FLANGED CHANNEL SIGN POST. DECORATIVE SIGNAGE PER OWNER.
7. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL SIGNAGE. VERIFY CONFLICTS WITH OWNER.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC AND PROVIDING ALL NECESSARY FLAGMAN, BARRELS, SIGNAGE, ETC. DURING CONSTRUCTION. ALL APPLICABLE M.U.T.C.D. STANDARDS SHALL GOVERN THIS WORK.
9. CONTRACTOR SHALL COORDINATE WITH APPLICABLE UTILITY COMPANY FOR WATER, CABLE, ELECTRIC, GAS, AND TELEPHONE CONNECTION SERVICE POINTS.
10. LANDSCAPING PLAN TO BE PROVIDED BY OTHERS. CONTRACTOR SHALL COORDINATE WITH OWNER, PUD DOCUMENTS AND CITY OF FRANKLIN FOR SPECIFICATIONS.
11. EXISTING UTILITY SIZE AND MATERIAL INFORMATION SHOWN ON THESE PLANS ARE PER THE BEST GRAPHICAL AND VISIBLE INFORMATION AVAILABLE. CONFLICTS MAY EXIST AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL SIZING AND MATERIAL INFORMATION PROVIDED. IF ACTUAL CONDITIONS DIFFER FROM THAT INFORMATION SHOWN ON THE PLANS, THE CONTRACTOR SHALL, PRIOR TO THE INSTALLATION OF ANY PROPOSED INFRASTRUCTURE, NOTIFY THE DESIGN ENGINEER IMMEDIATELY.

SETBACK TABLE

DEVELOPMENT STANDARD	HOMESTEADS - LOTS 50-64
FRONT YARD SETBACK (ADJACENT TO LOCAL STREET)	20 FT.
SIDE YARD SETBACK	10 FT. – PRIMARY STRUCTURE 5 FT. – ACCESSORY STRUCTURE
REAR YARD SETBACK	25 FT. – PRIMARY STRUCTURE 5 FT. – ACCESSORY STRUCTURE

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
317.773.9950 fax 317.773.9951
201 Cherry St. Noblesville, IN 46060

SITE DIMENSION PLAN

HOMESTEADS AT HILLVIEW - SECTION 2

JOB No.	.	DRAWN	LMC	CHECKED	TEN	SHEET	300
DATE	JULY 17, 2014	DESIGNED	WFH	APPR.	GJI		

GREGORY J. ILKO REGISTERED NO. 10300059 STATE OF INDIANA PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	BY	APPR.
1				
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SHEET 300

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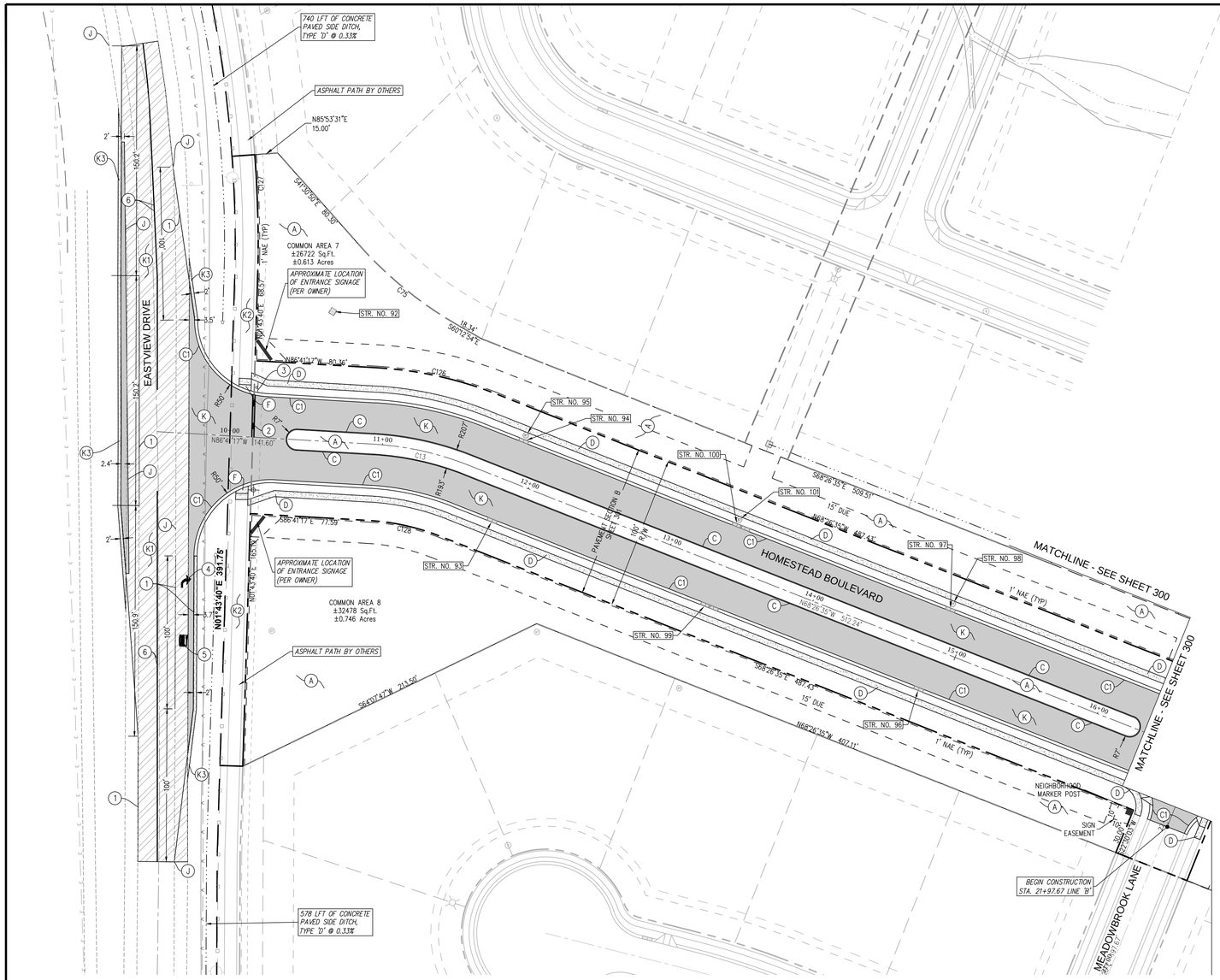
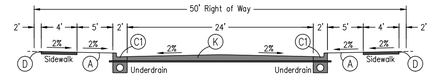
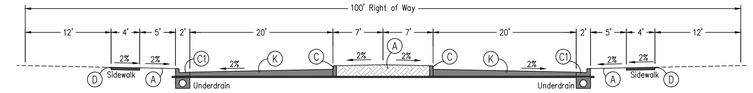




PAVEMENT SECTION A
NOT TO SCALE



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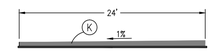

PAVEMENT SECTION C
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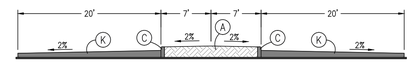

PAVEMENT SECTION D
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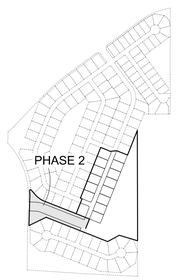
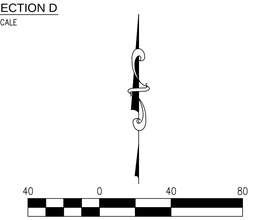


KEYMAP
NOT TO SCALE



SCALE: 1" = 40'

SEE SHEET 300 FOR LEGEND, DETAILS AND NOTES

THESE PLANS ARE BASED UPON INFORMATION FROM AN ALTA/ACSM LAND TITLE SURVEY PERFORMED BY CKW LAND SURVEYING, INC. WITH WORK ORDER NO. 130100 AND DATED JUNE 7, 2013 AND SURVEY INFORMATION PROVIDED BY JERRY WIGGINS SURVEYING.

Indiana811
Know what's below. Call before you dig.
"IT'S THE LAW"
CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544 or 811
CALL TOLL FREE
PER INDIANA STATE LAW IS-69-1991, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

Curve Table

Curve #	Length	Radius	Chord Direction	Chord Length
C75	83.23'	255.00'	N50°51'52"W	82.86'
C84	20.42'	13.00'	S23°13'35"E	18.38'
C85	20.37'	13.00'	S66°39'55"W	18.35'
C126	79.61'	250.00'	N77°33'56"W	79.27'
C127	66.24'	865.00'	N01°54'52"W	66.22'
C128	47.77'	150.00'	S77°33'56"E	47.56'

Curve Table: Alignments

Curve #	Radius	Length	Chord Direction	Chord Length
C13	200.00'	63.69'	S77°33'56"E	63.42'
C131	200.00'	174.33'	N86°35'09"E	168.86'
C132	200.00'	56.22'	N53°33'43"E	56.03'
C133	75.00'	58.82'	N23°02'35"E	57.32'

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
317 Gateway Dr. Batesville, IN 47006 (317) 765-1555

SHEET 301

SITE DIMENSION PLAN

HOMESTEADS AT HILLVIEW - SECTION 2

JOB No.	.	DRAWN	LMC	CHECKED	TEN
DATE	JULY 17, 2014	DESIGNED	WFH	APPR.	GJI

REGISTERED GREGORY J. ILKO NO. 10300059 STATE OF INDIANA PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	BY	APPR.
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SHEET 301

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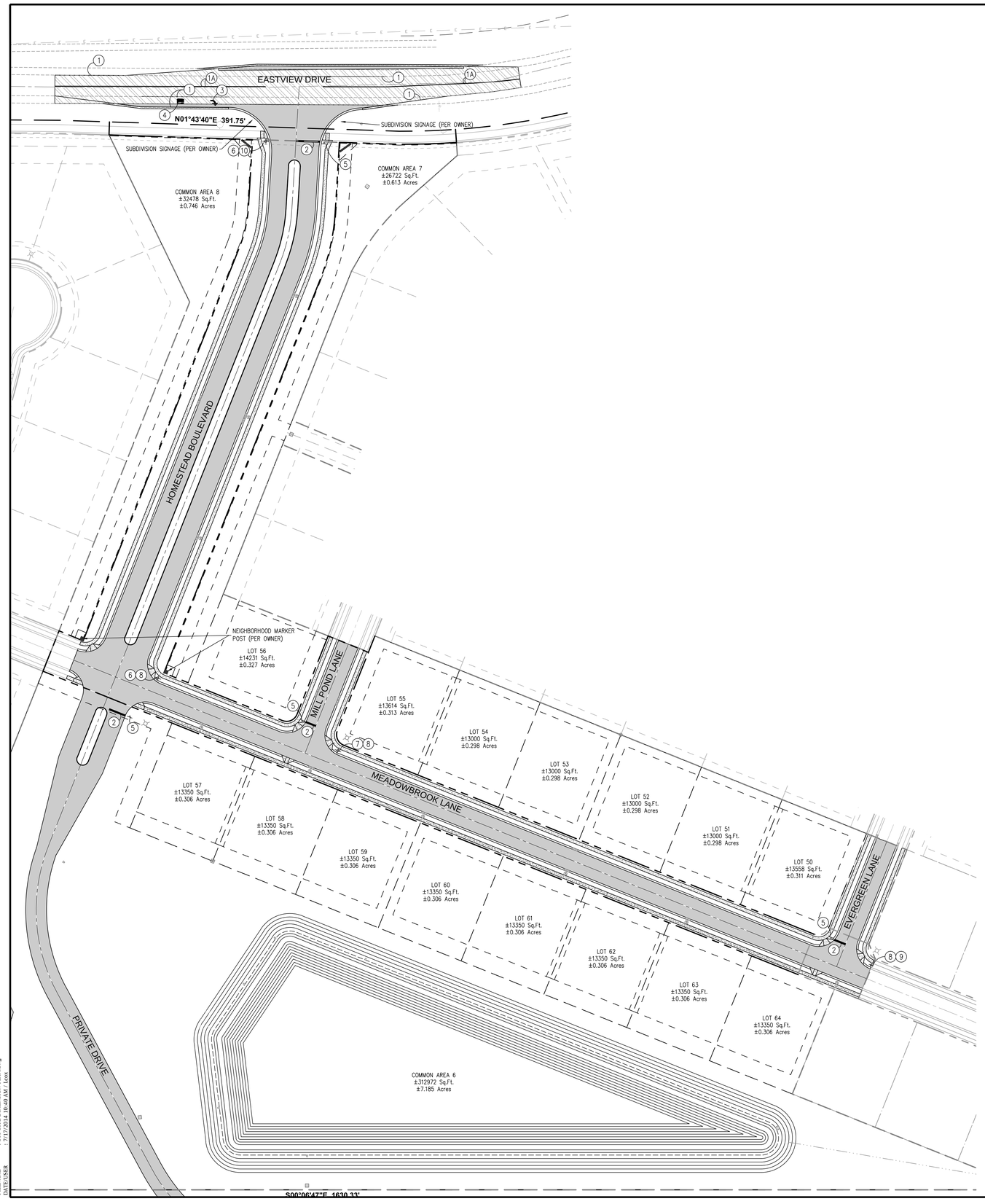
DATE/USER : 7/17/2014 11:57 AM / tcox



R1-1
(STANDARD SIZE)

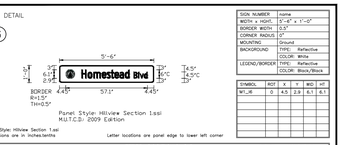
SIGNAGE DETAILS (5)
NOT TO SCALE

LEGEND

1. LINE, THERMOPLASTIC, SOLID WHITE, 4"
1A. LINE, THERMOPLASTIC, SOLID YELLOW, 4"
2. STOP BAR, THERMOPLASTIC, SOLID WHITE, 24"
3. TURN ARROW, THERMOPLASTIC, SOLID WHITE
4. WORD "ONLY", THERMOPLASTIC, SOLID WHITE
5. STOP SIGN, DECORATIVE (PER OWNER/PUD)
6. STREET SIGNAGE, HOMESTEAD BLVD (SEE DETAIL, THIS SHEET)
7. STREET SIGNAGE, MILL POND LANE (SEE DETAIL, THIS SHEET)
8. STREET SIGNAGE, MEADOWBROOK LANE (SEE DETAIL, THIS SHEET)
9. STREET SIGNAGE, EVERGREEN LANE (SEE DETAIL, THIS SHEET)
10. STREET SIGNAGE, EASTVIEW DRIVE (SEE DETAIL, THIS SHEET)

DECORATIVE LIGHT POLES AND FOUNDATION (PER OWNER/PUD)
NEIGHBORHOOD MARKER POSTS (PER OWNER/PUD)
SUBDIVISION SIGNAGE (PER OWNER/PUD)

SIGN DETAIL 1:25 (6)

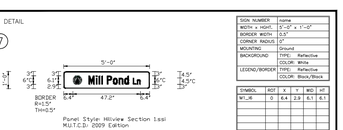


SIGN NUMBER	name
WIDTH x HIGHT	5'-6" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	0"
MOUNTING	Ground
BACKGROUND	TYPE: Reflective
	COLOR: White
LEGEND/BORDER	TYPE: Reflective
	COLOR: Black/Black

SYMBOL	ROT	X	Y	WID	HT
MT_HE	0	4.5	2.9	6.1	6.1

LETTER POSITIONS (X)																					LENGTH	SERIES/SIZE
H	o	m	e	s	t	e	a	d	B	l	v	d										C 2000
13.5	19.9	23.8	29.7	33.2	36	38.6	42.1	45.8	51.9	55.1	56.2	58.2									46	6/4.5,4.5/3.4

SIGN DETAIL 1:25 (7)

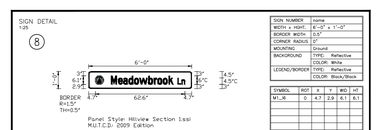


SIGN NUMBER	name
WIDTH x HIGHT	5'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	0"
MOUNTING	Ground
BACKGROUND	TYPE: Reflective
	COLOR: White
LEGEND/BORDER	TYPE: Reflective
	COLOR: Black/Black

SYMBOL	ROT	X	Y	WID	HT
MT_HE	0	6.4	2.9	6.1	6.1

LETTER POSITIONS (X)																					LENGTH	SERIES/SIZE
M	i	l	l	P	o	n	d	L	n													C 2000
17.4	22.6	24.5	28.4	30.3	34.5	38.5	42.4	48.5	51.3												36.1	6/4.5,4.5/3.4

SIGN DETAIL 1:25 (8)

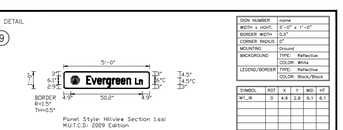


SIGN NUMBER	name
WIDTH x HIGHT	6'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	0"
MOUNTING	Ground
BACKGROUND	TYPE: Reflective
	COLOR: White
LEGEND/BORDER	TYPE: Reflective
	COLOR: Black/Black

SYMBOL	ROT	X	Y	WID	HT
MT_HE	0	4.7	2.9	6.1	6.1

LETTER POSITIONS (X)																					LENGTH	SERIES/SIZE
M	e	a	d	o	w	b	r	o	o	k	L	n										C 2000
15.7	20.7	24.2	28	31.9	35.5	41.8	45.7	48.2	52	55.9	62.2	65									51.6	6/4.5,4.5/3.4

SIGN DETAIL 1:25 (9)

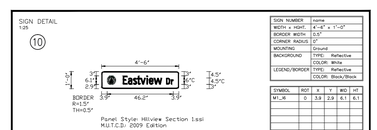


SIGN NUMBER	name
WIDTH x HIGHT	5'-0" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	0"
MOUNTING	Ground
BACKGROUND	TYPE: Reflective
	COLOR: White
LEGEND/BORDER	TYPE: Reflective
	COLOR: Black/Black

SYMBOL	ROT	X	Y	WID	HT
MT_HE	0	4.9	2.9	6.1	6.1

LETTER POSITIONS (X)																					LENGTH	SERIES/SIZE
E	v	e	r	G	r	e	e	n	L	n												C 2000
15.9	19.5	23.5	27.3	29.8	33.9	36.4	40.1	43.9	50	52.8											36.1	6/4.5,4.5/3.4

SIGN DETAIL 1:25 (10)



SIGN NUMBER	name
WIDTH x HIGHT	4'-6" x 1'-0"
BORDER WIDTH	0.5"
CORNER RADIUS	0"
MOUNTING	Ground
BACKGROUND	TYPE: Reflective
	COLOR: White
LEGEND/BORDER	TYPE: Reflective
	COLOR: Black/Black

SYMBOL	ROT	X	Y	WID	HT
MT_HE	0	3.9	2.9	6.1	6.1

LETTER POSITIONS (X)																					LENGTH	SERIES/SIZE
E	a	s	t	v	i	e	w	D	r													C 2000
14.9	18.6	22.2	24.9	27.3	31.5	33.2	36.8	45.3	48.6												35.2	6/4.5,4.5/3.4

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
247 FORREST ST. BOULDER, CO 80302 (303) 785-0200

SHEET 302

STREET SYSTEM PLAN AND STREET SIGNAGE DETAILS

HOMESTEADS AT HILLVIEW - SECTION 2

JOB No.	.	DRAWN	LMC	CHECKED	TEN
DATE	JULY 17, 2014	DESIGNED	WFH	APPR.	GJI

GREGORY J. ILKO REGISTERED NO. 10300059 STATE OF COLORADO PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	BY	APPR.
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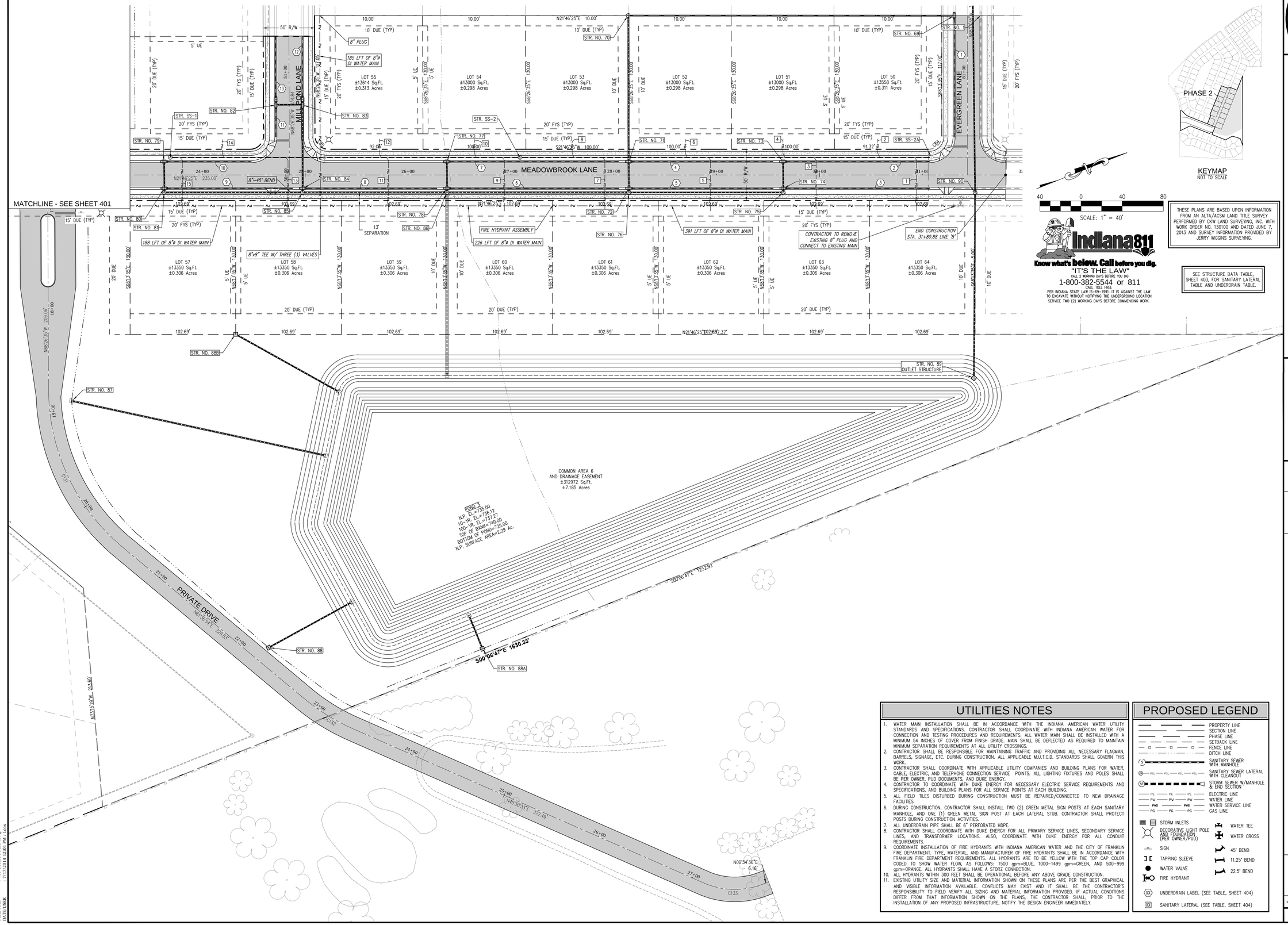
SHEET 302

DIRECTORY PATH : R:\Active\John Greenwer\Hillview CC Property\CAD\PHASE 2 - PLANS
FILENAME : 300 SITE DIMENSION PLAN.dwg
DATE/USER : 7/17/2014 10:40 AM / Lcox



UTILITIES NOTES

1. WATER MAIN INSTALLATION SHALL BE IN ACCORDANCE WITH THE INDIANA AMERICAN WATER UTILITY STANDARDS AND SPECIFICATIONS. CONTRACTOR SHALL COORDINATE WITH INDIANA AMERICAN WATER FOR CONNECTION AND TESTING PROCEDURES AND REQUIREMENTS. ALL WATER MAIN SHALL BE INSTALLED WITH A MINIMUM 54 INCHES OF COVER FROM FINISH GRADE. MAIN SHALL BE DEFLECTED AS REQUIRED TO MAINTAIN MINIMUM SEPARATION REQUIREMENTS AT ALL UTILITY CROSSINGS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC AND PROVIDING ALL NECESSARY FLAGMAN, BARRELS, SIGNAGE, ETC. DURING CONSTRUCTION. ALL APPLICABLE M.U.T.C.D. STANDARDS SHALL GOVERN THIS WORK.
3. CONTRACTOR SHALL COORDINATE WITH APPLICABLE UTILITY COMPANIES AND BUILDING PLANS FOR WATER, CABLE, ELECTRIC, AND TELEPHONE CONNECTION SERVICE POINTS. ALL LIGHTING FIXTURES AND POLES SHALL BE PER OWNER, PUD DOCUMENTS, AND DUKE ENERGY.
4. CONTRACTOR TO COORDINATE WITH DUKE ENERGY FOR NECESSARY ELECTRIC SERVICE REQUIREMENTS AND SPECIFICATIONS, AND BUILDING PLANS FOR ALL SERVICE POINTS AT EACH BUILDING.
5. ALL FIELD TILES DISTURBED DURING CONSTRUCTION MUST BE REPAIRED/CONNECTED TO NEW DRAINAGE FACILITIES.
6. DURING CONSTRUCTION, CONTRACTOR SHALL INSTALL TWO (2) GREEN METAL SIGN POSTS AT EACH SANITARY MANHOLE, AND ONE (1) GREEN METAL SIGN POST AT EACH LATERAL STUB. CONTRACTOR SHALL PROTECT POSTS DURING CONSTRUCTION ACTIVITIES.
7. ALL UNDERDRAIN PIPE SHALL BE 6" PERFORATED HDPE.
8. CONTRACTOR SHALL COORDINATE WITH DUKE ENERGY FOR ALL PRIMARY SERVICE LINES, SECONDARY SERVICE LINES, AND TRANSFORMER LOCATIONS. ALSO, COORDINATE WITH DUKE ENERGY FOR ALL CONDUIT REQUIREMENTS.
9. COORDINATE INSTALLATION OF FIRE HYDRANTS WITH INDIANA AMERICAN WATER AND THE CITY OF FRANKLIN FIRE DEPARTMENT. TYPE, MATERIAL, AND MANUFACTURER OF FIRE HYDRANTS SHALL BE IN ACCORDANCE WITH FRANKLIN FIRE DEPARTMENT REQUIREMENTS. ALL HYDRANTS ARE TO BE YELLOW WITH THE TOP CAP COLOR CODED TO SHOW WATER FLOW, AS FOLLOWS: 1500 gpm=BLUE, 1000-1499 gpm=GREEN, AND 500-999 gpm=ORANGE. ALL HYDRANTS SHALL HAVE A STORZ CONNECTION.
10. ALL HYDRANTS WITHIN 300 FEET SHALL BE OPERATIONAL BEFORE ANY ABOVE GRADE CONSTRUCTION.
11. EXISTING UTILITY SIZE AND MATERIAL INFORMATION SHOWN ON THESE PLANS ARE PER THE BEST GRAPHICAL AND VISIBLE INFORMATION AVAILABLE. CONFLICTS MAY EXIST AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL SIZING AND MATERIAL INFORMATION PROVIDED. IF ACTUAL CONDITIONS DIFFER FROM THAT INFORMATION SHOWN ON THE PLANS, THE CONTRACTOR SHALL, PRIOR TO THE INSTALLATION OF ANY PROPOSED INFRASTRUCTURE, NOTIFY THE DESIGN ENGINEER IMMEDIATELY.

PROPOSED LEGEND

- PROPERTY LINE
- SECTION LINE
- PHASE LINE
- SETBACK LINE
- FENCE LINE
- DITCH LINE
- SANITARY SEWER WITH MANHOLE
- SANITARY SEWER LATERAL WITH CLEANOUT
- STORM SEWER W/MANHOLE & END SECTION
- ELECTRIC LINE
- WATER LINE
- WATER SERVICE LINE
- GAS LINE
- STORM INLETS
- DECORATIVE LIGHT POLE AND FOUNDATION (PER OWNER/PUD)
- SIGN
- TAPPING SLEEVE
- WATER VALVE
- FIRE HYDRANT
- WATER TEE
- WATER CROSS
- 45° BEND
- 11.25° BEND
- 22.5° BEND
- UNDERDRAIN LABEL (SEE TABLE, SHEET 404)
- SANITARY LATERAL (SEE TABLE, SHEET 404)

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
317 Virginia St. • Crown Point, IN 46307 • (219) 663-1333

SHEET 400

UTILITY PLAN

HOMESTEADS AT HILLVIEW - SECTION 2

JOB No.	.	DRAWN	LMC	CHECKED	TEN	APPR.	GJI
DATE	JULY 17, 2014	DESIGNED	MFH				

GREGORY J. ILKO REGISTERED NO. 10300059 STATE OF INDIANA PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	BY	APPR.
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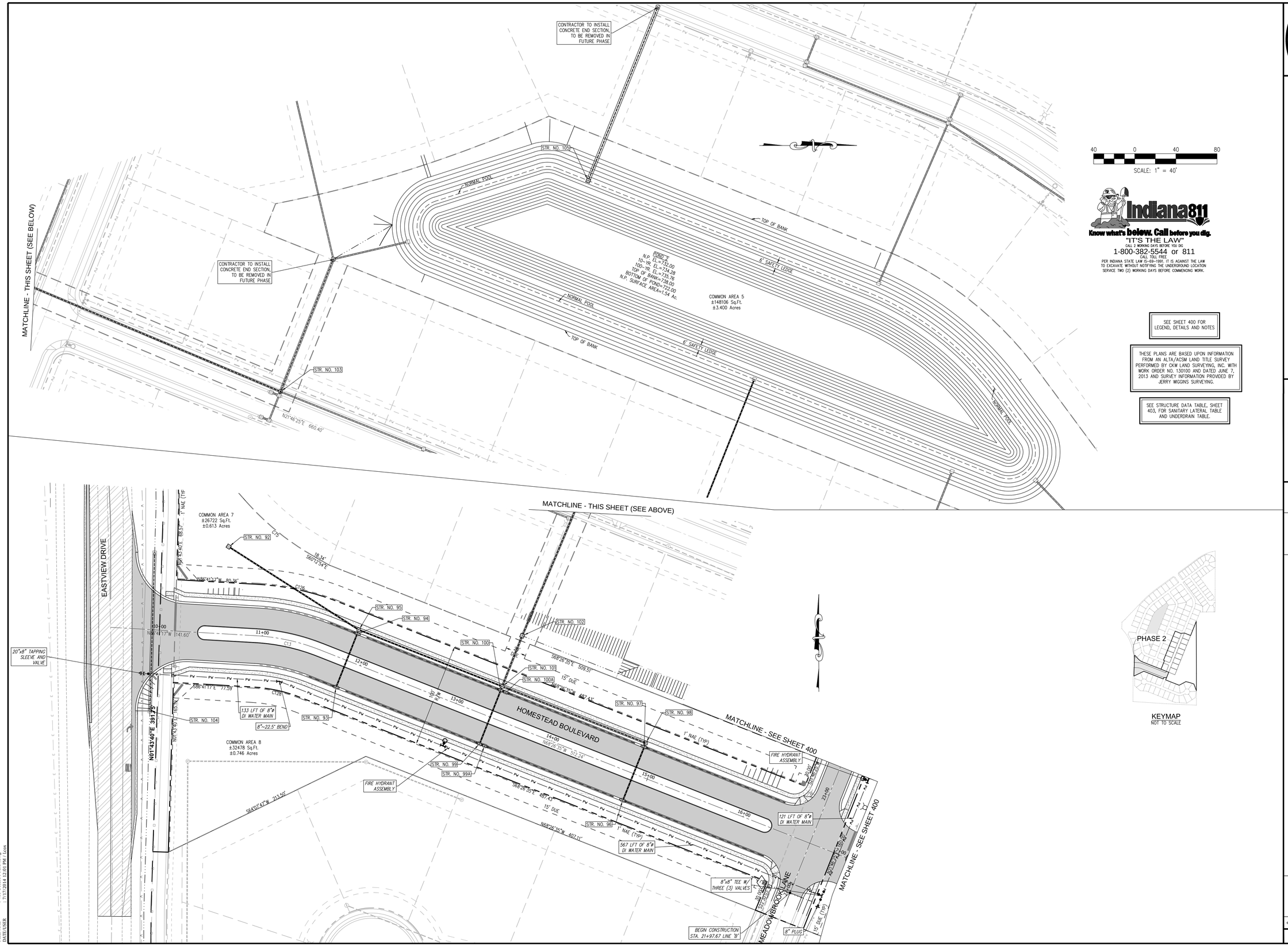
SHEET 400

DIRECTORY PATH : R:\Active\John Grimmer\Hillview CC Property\CAD\PHASE 2 - PLANS
FILENAME : 400 UTILITY PLAN.dwg
DATE/USER : 7/17/2014 12:01 PM / Lcox



CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
127 STORMS St. BLOOMINGTON, IN 46402 (812) 780-0155

UTILITY PLAN

HOMESTEADS AT HILLVIEW - SECTION 2

JOB No.	.	DRAWN	LMC	CHECKED	TEN
DATE	JULY 17, 2014	DESIGNED	WFH	APPR.	GJI

GREGORY J. ILKO REGISTERED NO. 10300059 STATE OF INDIANA PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	BY	APPR.
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SHEET 401

DIRECTORY PATH : R:\Active\John Grimmer\Hillview CC Property\CAD\PHASE 2 - PLANS
FILENAME : 400 UTILITY PLAN.dwg
DATE/USER : 7/17/2014 12:01 PM Leon

40 0 40 80

SCALE: 1" = 40'

THESE PLANS ARE BASED UPON INFORMATION FROM AN ALTA/ACSM LAND TITLE SURVEY PERFORMED BY CKW LAND SURVEYING, INC. WITH WORK ORDER NO. 130100 AND DATED JUNE 7, 2013 AND SURVEY INFORMATION PROVIDED BY JERRY WIGGINS SURVEYING.

Indiana811
Know what's below. Call before you dig.
"IT'S THE LAW"
CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544 or 811
CALL TOLL FREE
PER INDIANA STATE LAW IS-69-1991. IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

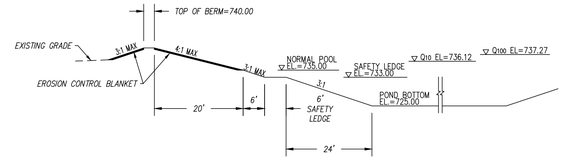
BENCHMARK INFORMATION

BENCHMARK – JON 6 – ELEVATION 721.534 FEET
IN JOHNSON COUNTY, FRANKLIN QUADRANGLE, IN THE SOUTHEAST QUARTER OF SECTION 14, TOWNSHIP 12 NORTH, RANGE 4 EAST, SECOND PRINCIPAL MERIDIAN; AT FRANKLIN; 0.2 NORTH ALONG FORSYTHE STREET FROM ITS INTERSECTION WITH STATE ROAD 44 TO AN ELECTRIC TOWER; SET IN THE TOP OF THE SOUTHWEST CONCRETE SUPPORT OF THE ELECTRIC POWER TAKE OFF TOWER, 110 FEET EAST OF THE CENTERLINE OF FORSYTHE STREET, 50 FEET SOUTH OF HURRICANE CREEK, 1.0 FOOT ABOVE THE GROUND; AN INDIANA FLOOD CONTROL AND WATER RESOURCES COMMISSION BRASS CONTROL STATION TABLET, STAMPED "JON 6"

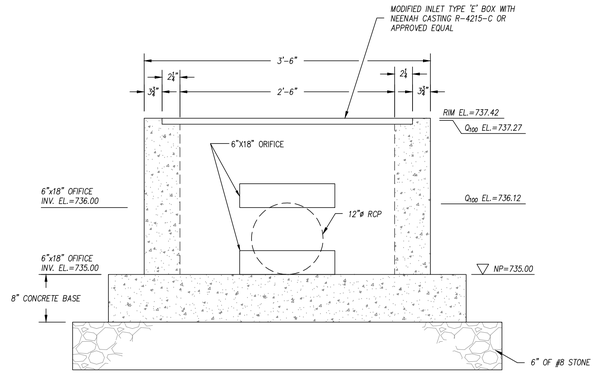
CONTROL POINT 6	– ELEVATION 733.51	CONTROL POINT 909	– ELEVATION 725.01
CONTROL POINT 353	– ELEVATION 739.81	CONTROL POINT 1300	– ELEVATION 740.18
CONTROL POINT 354	– ELEVATION 736.18	CONTROL POINT 1635	– ELEVATION 754.36
CONTROL POINT 724	– ELEVATION 731.06	CONTROL POINT 1817	– ELEVATION 738.15
CONTROL POINT 726	– ELEVATION 735.95		

PROPOSED LEGEND

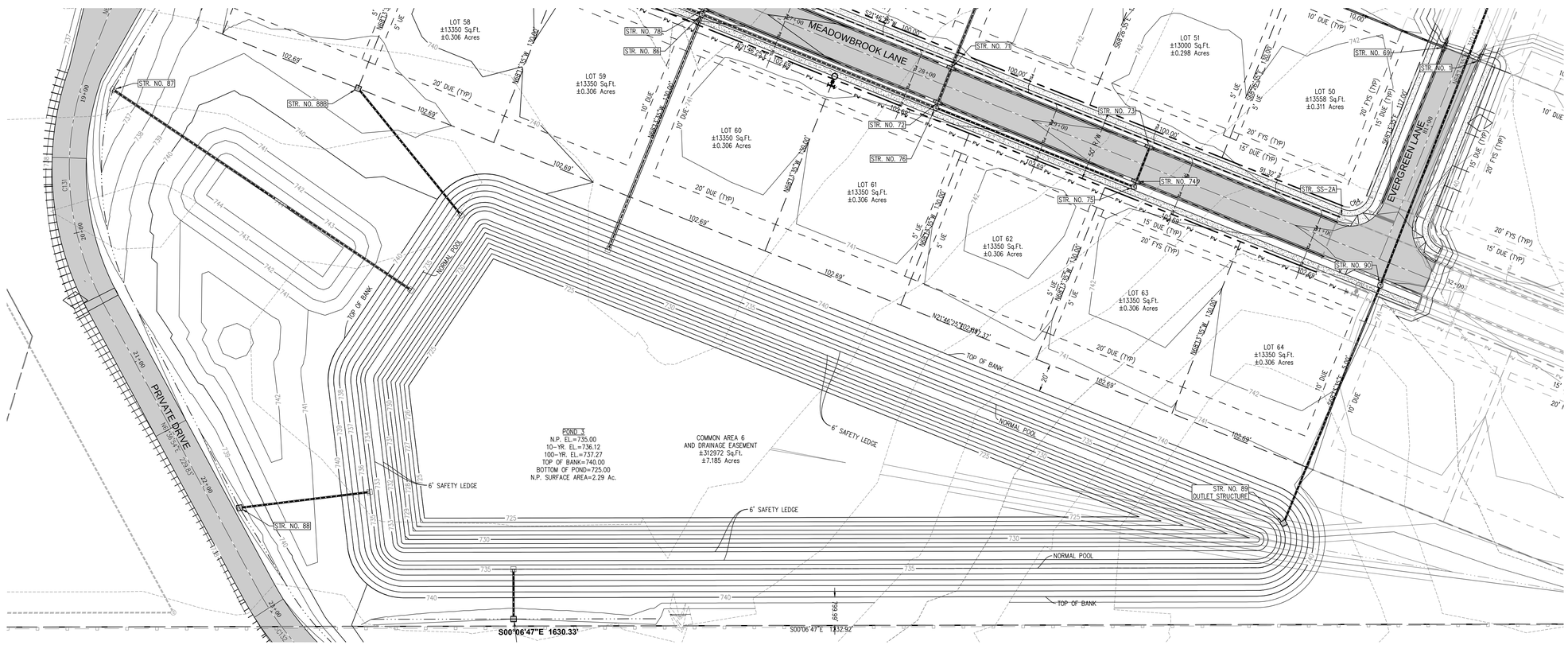
- PROPERTY LINE
- SECTION LINE
- PHASE LINE
- SETBACK LINE
- FENCE LINE
- DITCH LINE
- SANITARY SEWER WITH MANHOLE
- SANITARY SEWER LATERAL WITH CLEANOUT
- STORM SEWER W/MANHOLE & END SECTION
- ELECTRIC LINE
- WATER LINE
- WATER SERVICE LINE
- GAS LINE
- STORM INLETS
- DECORATIVE LIGHT POLE AND FOUNDATION (PER OWNER/PUD)
- SIGN
- TAPPING SLEEVE
- WATER VALVE
- FIRE HYDRANT
- WATER TEE
- WATER CROSS
- 45° BEND
- 11.25° BEND
- 22.5° BEND
- UNDERDRAIN LABEL (SEE TABLE, SHEET 404)



TYPICAL DETENTION POND SECTION
POND 3
NOT TO SCALE



PROPOSED POND 3 OUTLET STRUCTURE
STR #89
NOT TO SCALE



CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
317 Virginia St. Crown Point, IN 46307 (219) 663-1555

DRAINAGE PLAN

HOMESTEADS AT HILLVIEW - SECTION 2

JOB No.	.	DRAWN	LMC	CHECKED	TEN	SHEET	402
DATE	JULY 17, 2014	DESIGNED	WFH	APPR.	GJI		

GREGORY J. ILKO REGISTERED NO. 10300059 STATE OF INDIANA PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	BY	APPR.
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SHEET 402

DIRECTORY PATH : R:\Active\Jobs Grimmer\Hillview CC Property\CAD\PHASE 2 - PLANS
FILENAME : 400 UTILITY PLAN.dwg
DATE/USER : 7/17/2014 12:01 PM / Lora

40 0 40 80

SCALE: 1" = 40'

THESE PLANS ARE BASED UPON INFORMATION FROM AN ALTA/ACSM LAND TITLE SURVEY PERFORMED BY CKW LAND SURVEYING, INC. WITH WORK ORDER NO. 130100 AND DATED JUNE 7, 2013. AND SURVEY INFORMATION PROVIDED BY JERRY WIGGINS SURVEYING.

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"IT'S THE LAW"
CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544 or 811
CALL TOLL FREE
PER INDIANA STATE LAW IS-69-1991. IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

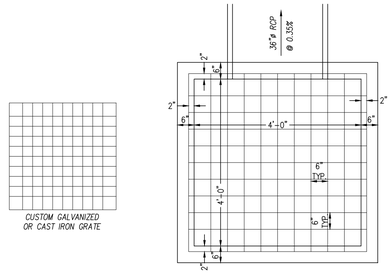
BENCHMARK INFORMATION

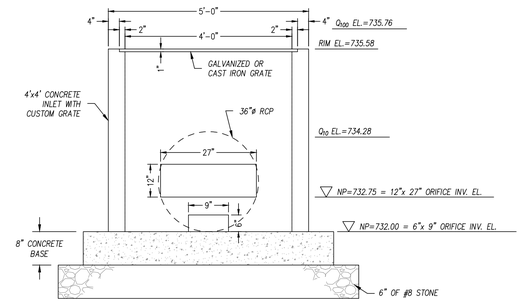
BENCHMARK – JON 6 – ELEVATION 721.534 FEET
IN JOHNSON COUNTY, FRANKLIN QUADRANGLE, IN THE SOUTHEAST QUARTER OF SECTION 14, TOWNSHIP 12 NORTH, RANGE 4 EAST, SECOND PRINCIPAL MERIDIAN; AT FRANKLIN; 0.2 NORTH ALONG FORSYTHE STREET FROM ITS INTERSECTION WITH STATE ROAD 44 TO AN ELECTRIC TOWER; SET IN THE TOP OF THE SOUTHWEST CONCRETE SUPPORT OF THE ELECTRIC POWER TAKE OFF TOWER, 110 FEET EAST OF THE CENTERLINE OF FORSYTHE STREET, 50 FEET SOUTH OF HURRICANE CREEK, 1.0 FOOT ABOVE THE GROUND; AN INDIANA FLOOD CONTROL AND WATER RESOURCES COMMISSION BRASS CONTROL STATION TABLET, STAMPED "JON 6"

CONTROL POINT 6	– ELEVATION 733.51	CONTROL POINT 909	– ELEVATION 725.01
CONTROL POINT 353	– ELEVATION 739.81	CONTROL POINT 1300	– ELEVATION 740.18
CONTROL POINT 354	– ELEVATION 736.18	CONTROL POINT 1635	– ELEVATION 754.36
CONTROL POINT 724	– ELEVATION 731.06	CONTROL POINT 1817	– ELEVATION 738.15
CONTROL POINT 726	– ELEVATION 735.95		

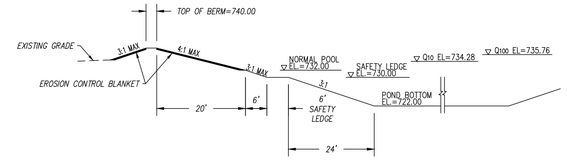
PROPOSED LEGEND

- PROPERTY LINE
- SECTION LINE
- PHASE LINE
- SETBACK LINE
- FENCE LINE
- DITCH LINE
- SANITARY SEWER WITH MANHOLE
- SANITARY SEWER LATERAL WITH CLEANOUT
- STORM SEWER W/MANHOLE & END SECTION
- ELECTRIC LINE
- WATER LINE
- WATER SERVICE LINE
- GAS LINE
- STORM INLETS
- DECORATIVE LIGHT POLE AND FOUNDATION (PER OWNER/PUD)
- SIGN
- TAPPING SLEEVE
- WATER VALVE
- FIRE HYDRANT
- WATER TEE
- WATER CROSS
- 45° BEND
- 11.25° BEND
- 22.5° BEND
- UNDERDRAIN LABEL (SEE TABLE, SHEET 404)

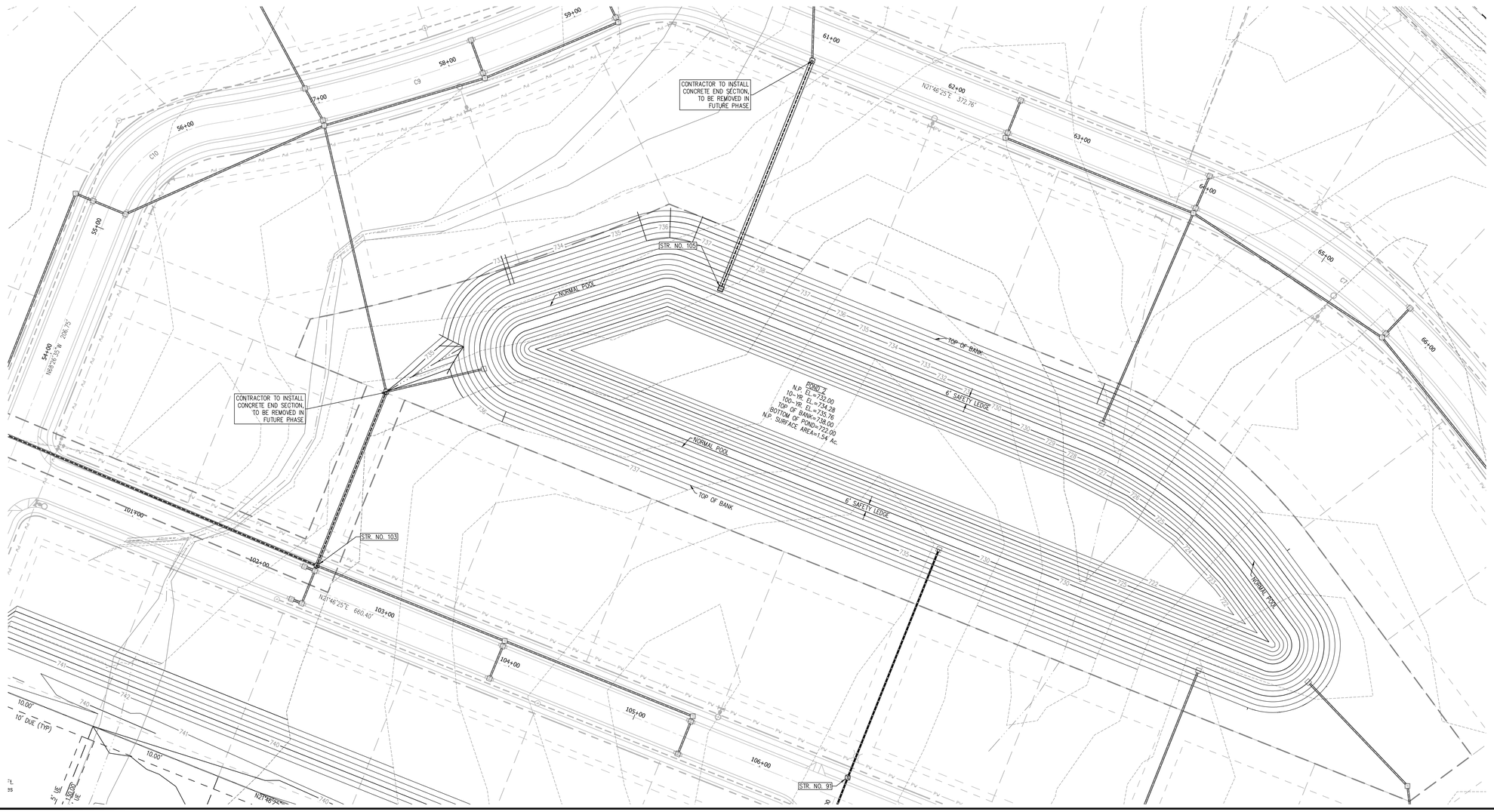




PROPOSED POND #2 OUTLET STRUCTURE
STR. NO. 105
NOT TO SCALE



TYPICAL DETENTION POND SECTION
POND 2
NOT TO SCALE



CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
317.576.9816 FX: 800.574.7292 FX: 317.780.1555

SHEET 403

DRAINAGE PLAN

HOMESTEADS AT HILLVIEW - SECTION 2

JOB No.	.	DRAWN	LMC	CHECKED	TEN
DATE	JULY 17, 2014	DESIGNED	WFH	APPR.	GJI

GREGORY J. ILKO REGISTERED NO. 10300059 STATE OF INDIANA PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	BY	APPR.
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SHEET 403

DIRECTORY PATH : R:\Active\John Grimmer\Hillview CC Property\CAD\PHASE 2 - PLANS
FILENAME : 400 UTILITY PLAN.dwg
DATE/USER : 7/17/2014 12:01 PM / tcox

SANITARY SEWER STRUCTURE TABLE

STR. DATA

STR. SS-1

INSTALL SANITARY SEWER MANHOLE WITH NEENAH R-1772 CASTING OR APPROVED EQUAL AND 340 LFT OF 8"ø SDR-35 PVC @ 0.40%
RIM=738.65
INV Out (8"~N)=733.43

STR. SS-2

INSTALL SANITARY SEWER MANHOLE WITH NEENAH R-1772 CASTING OR APPROVED EQUAL AND 400 LFT OF 8"ø SDR-35 PVC @ 0.40%
RIM=740.26
INV In (8"~S)=732.07
INV Out (8"~N)=732.05

STR. SS-2A

INSTALL SANITARY SEWER MANHOLE WITH NEENAH R-1772 CASTING OR APPROVED EQUAL AND 265 LFT OF 8"ø SDR-35 PVC @ 0.02%
RIM=742.49
INV In (8"~S)=730.45
INV Out (8"~N)=730.43

STORM SEWER STRUCTURE TABLE

STR. DATA

STR. NO. 69

INSTALL TYPE 'J' INLET WITH NEENAH R-3501-TB CASTING OR APPROVED EQUAL AND 317 LFT OF 12"ø RCP @ 0.27%
RIM=741.05
INV In (6"~E)=738.80
INV Out (12"~S)=737.15

STR. NO. 70

INSTALL TYPE 'C' MANHOLE WITH NEENAH R-4215-C CASTING OR APPROVED EQUAL AND 142 LFT OF 18"ø RCP @ 0.17%
RIM=738.50
INV In (12"~N)=736.29
INV Out (18"~E)=736.29

STR. NO. 71

INSTALL TYPE 'M' INLET WITH NEENAH R-3501-TL CASTING OR APPROVED EQUAL AND 26 LFT OF 18"ø RCP @ 0.20%
RIM=740.44
INV In (18"~W)=736.05
INV In (6"~N)=736.54
INV Out (18"~E)=736.05

STR. NO. 72

INSTALL TYPE 'M' INLET WITH NEENAH R-3501-TR CASTING OR APPROVED EQUAL AND 4 LFT OF 18"ø RCP @ 0.50%
RIM=740.44
INV In (18"~W)=736.00
INV In (6"~N)=736.54
INV Out (18"~SE)=736.00

STR. NO. 73

INSTALL TYPE 'J' INLET WITH NEENAH R-3501-TL CASTING OR APPROVED EQUAL AND 26 LFT OF 12"ø RCP @ 0.30%
RIM=740.88
INV In (6"~N)=736.98
INV Out (12"~E)=736.53

STR. NO. 74

INSTALL TYPE 'M' INLET WITH NEENAH R-3501-TR CASTING OR APPROVED EQUAL AND 4 LFT OF 12"ø RCP @ 0.50%
RIM=740.88
INV In (12"~W)=736.45
INV In (6"~N)=736.98
INV Out (12"~SE)=736.45

STR. NO. 75

INSTALL TYPE 'C' MANHOLE WITH NEENAH R-1714 CASTING OR APPROVED EQUAL AND 150 LFT OF 12"ø RCP @ 0.30%
RIM=741.23
INV In (12"~NW)=736.43
INV Out (12"~S)=736.43

STR. NO. 76

INSTALL TYPE 'C' MANHOLE WITH NEENAH R-1714 CASTING OR APPROVED EQUAL AND 177 LFT OF 18"ø RCP @ 0.35%
RIM=740.80
INV In (18"~NW)=735.98
INV In (12"~N)=735.98
INV Out (18"~S)=735.98

STR. NO. 77

INSTALL TYPE 'J' INLET WITH NEENAH R-3501-TL CASTING OR APPROVED EQUAL AND 26 LFT OF 12"ø RCP @ 0.30%
RIM=739.55
INV In (6"~N)=735.65
INV Out (12"~E)=735.46

STR. NO. 78

INSTALL TYPE 'M' INLET WITH NEENAH R-3501-TR CASTING OR APPROVED EQUAL AND 4 LFT OF 12"ø RCP @ 0.50%
RIM=739.55
INV In (12"~W)=735.38
INV In (6"~N)=735.65
INV Out (12"~SE)=735.38

STR. NO. 79

INSTALL TYPE 'J' INLET WITH NEENAH R-3501-TB CASTING OR APPROVED EQUAL AND 26 LFT OF 12"ø RCP @ 0.30%
RIM=738.27
INV In (6"~N)=734.37
INV Out (12"~E)=735.95

STR. NO. 80

INSTALL TYPE 'M' INLET WITH NEENAH R-3501-TB CASTING OR APPROVED EQUAL AND 4 LFT OF 12"ø RCP @ 0.50%
RIM=738.27
INV In (12"~W)=735.87
INV In (6"~N)=734.37
INV Out (12"~SE)=735.87

STR. NO. 81

INSTALL TYPE 'C' MANHOLE WITH NEENAH R-1714 CASTING OR APPROVED EQUAL AND 135 LFT OF 15"ø RCP @ 0.20%
RIM=738.62
INV In (12"~NW)=735.85
INV Out (15"~N)=735.85

STR. NO. 82

INSTALL TYPE 'M' INLET WITH NEENAH R-3501-TB CASTING OR APPROVED EQUAL AND 26 LFT OF 12"ø RCP @ 0.40%
RIM=738.13
INV In (12"~W)=735.86
INV In (6"~E)=734.23
INV Out (12"~N)=735.86

STR. NO. 82A

INSTALL TYPE 'J' INLET WITH NEENAH R-3501-TB CASTING OR APPROVED EQUAL AND 5 LFT OF 12"ø RCP @ 0.40%
RIM=738.13
INV In (6"~W)=734.23
INV Out (12"~E)=735.88

STR. NO. 83

INSTALL TYPE 'M' INLET WITH NEENAH R-3501-TB CASTING OR APPROVED EQUAL AND 81 LFT OF 15"ø RCP @ 0.20%
RIM=738.13
INV In (12"~S)=735.76
INV In (12"~W)=735.76
INV Out (15"~E)=735.76

STR. NO. 83A

INSTALL TYPE 'J' INLET WITH NEENAH R-3501-TB CASTING OR APPROVED EQUAL AND 5 LFT OF 12"ø RCP @ 0.40%
RIM=738.13
INV In (6"~W)=734.20
INV Out (12"~E)=735.78

STR. NO. 84

INSTALL TYPE 'M' INLET WITH NEENAH R-3501-TR CASTING OR APPROVED EQUAL AND 4 LFT OF 15"ø RCP @ 0.50%
RIM=738.97
INV In (15"~W)=735.60
INV In (6"~N)=735.07
INV Out (15"~SE)=735.60

STR. NO. 85

INSTALL TYPE 'C' MANHOLE WITH NEENAH R-1714 CASTING OR APPROVED EQUAL AND 140 LFT OF 18"ø RCP @ 0.16%
RIM=739.32
INV In (15"~NW)=735.58
INV In (15"~S)=735.58
INV Out (18"~N)=735.58

STR. NO. 86

INSTALL TYPE 'C' MANHOLE WITH NEENAH R-1714 CASTING OR APPROVED EQUAL AND 178 LFT OF 24"ø RCP @ 0.20%
RIM=739.90
INV In (18"~N)=735.36
INV In (12"~NW)=735.36
INV In (18"~S)=735.36
INV Out (24"~E)=735.36

STR. NO. 87

INSTALL TWO (2) CONCRETE END SECTIONS AND 252 LFT OF 15"ø RCP @ 0.20%
U.S. ELEV.=735.50
D.S. ELEV.=735.00

STR. NO. 88

INSTALL TYPE 'E' MANHOLE WITH NEENAH R-4215-C CASTING OR APPROVED EQUAL AND 92 LFT OF 12"ø RCP @ 0.27%
RIM=737.40
INV Out (12"~N)=735.25

STR. NO. 88A

INSTALL TYPE 'E' MANHOLE WITH NEENAH R-4215-C CASTING OR APPROVED EQUAL AND 35 LFT OF 12"ø RCP @ 1.00%
RIM=738.00
INV Out (12"~W)=735.35

STR. NO. 88B

INSTALL TYPE 'E' MANHOLE WITH NEENAH R-4215-C CASTING OR APPROVED EQUAL AND 115 LFT OF 12"ø RCP @ 0.72%
RIM=738.00
INV Out (12"~NE)=735.83

STR. NO. 89

INSTALL TYPE 'E' MANHOLE WITH NEENAH R-4215-C CASTING OR APPROVED EQUAL AND 181 LFT OF 12"ø RCP @ 0.42%
RIM=737.42
INV Out (12"~W)=735.00
*SEE OUTLET STR-DETAIL, SHEET 402

STR. NO. 90

INSTALL TYPE 'C' MANHOLE WITH NEENAH R-1714 CASTING OR APPROVED EQUAL AND 344 LFT OF 12"ø RCP @ 0.42%
RIM=742.36
INV In (12"~E)=734.24
INV Out (12"~W)=734.24

STR. NO. 91

INSTALL TYPE 'C' MANHOLE WITH NEENAH R-1714 CASTING OR APPROVED EQUAL AND 182 LFT OF 12"ø RCP @ 0.42%
RIM=742.18
INV In (12"~E)=732.80
INV Out (12"~W)=732.80

STR. NO. 92

INSTALL TYPE 'E' MANHOLE WITH NEENAH R-4215-C CASTING OR APPROVED EQUAL AND 150 LFT OF 12"ø RCP @ 0.27%
RIM=736.75
INV Out (12"~SE)=734.61

STR. NO. 93

INSTALL TYPE 'J' INLET WITH NEENAH R-3501-TL CASTING OR APPROVED EQUAL AND 56 LFT OF 12"ø RCP @ 0.27%
RIM=737.59
INV In (6"~W)=733.69
INV Out (12"~N)=734.37

STR. NO. 94

INSTALL TYPE 'M' INLET WITH NEENAH R-3501-TR CASTING OR APPROVED EQUAL AND 4 LFT OF 12"ø RCP @ 0.50%
RIM=737.59
INV In (12"~S)=734.22
INV In (6"~W)=733.69
INV Out (12"~N)=734.22

STR. NO. 95

INSTALL TYPE 'C' MANHOLE WITH NEENAH R-1714 CASTING OR APPROVED EQUAL AND 150 LFT OF 12"ø RCP @ 0.27%
RIM=737.94
INV In (12"~S)=734.20
INV In (12"~NW)=734.20
INV Out (12"~E)=734.20

STR. NO. 96

INSTALL TYPE 'J' INLET WITH NEENAH R-3501-TR CASTING OR APPROVED EQUAL AND 56 LFT OF 12"ø RCP @ 0.27%
RIM=737.50
INV In (6"~E)=733.60
INV Out (12"~N)=734.37

STR. NO. 97

INSTALL TYPE 'J' INLET WITH NEENAH R-3501-TL CASTING OR APPROVED EQUAL AND 4 LFT OF 12"ø RCP @ 0.50%
RIM=737.50
INV In (12"~S)=734.22
INV In (6"~E)=733.60
INV Out (12"~N)=734.22

STR. NO. 98

INSTALL TYPE 'C' MANHOLE WITH NEENAH R-1714 CASTING OR APPROVED EQUAL AND 150 LFT OF 18"ø RCP @ 0.27%
RIM=737.85
INV In (12"~S)=734.20
INV Out (18"~W)=734.20

STR. NO. 99

INSTALL TYPE 'M' INLET WITH NEENAH R-3501-TB CASTING OR APPROVED EQUAL AND 56 LFT OF 12"ø RCP @ 0.27%
RIM=736.64
INV In (12"~E)=733.96
INV In (6"~W)=731.58
INV Out (12"~N)=733.96

STR. NO. 99A

INSTALL TYPE 'J' INLET WITH NEENAH R-3501-TB CASTING OR APPROVED EQUAL AND 5 LFT OF 12"ø RCP @ 0.38%
RIM=736.64
INV In (6"~E)=731.60
INV Out (12"~W)=733.98

STR. NO. 100

INSTALL TYPE 'M' INLET WITH NEENAH R-3501-TB CASTING OR APPROVED EQUAL AND 4 LFT OF 12"ø RCP @ 0.50%
RIM=736.64
INV In (12"~S)=733.81
INV In (12"~E)=733.81
INV In (6"~W)=731.58
INV Out (12"~N)=733.81

STR. NO. 100A

INSTALL TYPE 'J' INLET WITH NEENAH R-3501-TB CASTING OR APPROVED EQUAL AND 5 LFT OF 12"ø RCP @ 0.38%
RIM=736.64
INV In (6"~E)=731.60
INV Out (12"~W)=733.83

STR. NO. 101

INSTALL TYPE 'C' MANHOLE WITH NEENAH R-1714 CASTING OR APPROVED EQUAL AND 53 LFT OF 18"ø RCP @ 0.15%
RIM=736.99
INV In (18"~E)=733.79
INV In (12"~S)=733.79
INV In (12"~W)=733.79
INV Out (18"~N)=733.79

STR. NO. 102

INSTALL TYPE 'E' MANHOLE WITH NEENAH R-4215-C CASTING OR APPROVED EQUAL AND 390 LFT OF 18"ø RCP @ 0.27%
RIM=736.40
INV In (18"~S)=733.71
INV Out (18"~NE)=733.71

STR. NO. 103

INSTALL TYPE 'C' MANHOLE WITH NEENAH R-1714 CASTING OR APPROVED EQUAL AND 139 LFT OF 24"ø RCP @ 0.28%
RIM=737.90
INV In (18"~SW)=732.65
INV Out (24"~W)=732.65

STR. NO. 104

INSTALL 154 LFT OF 30"ø RCP @ 0.35% WITH TWO (2) CONCRETE END SECTIONS.
U.S. ELEV.=728.88
D.S. ELEV.=728.34

STR. NO. 105

INSTALL 4'x4' CONCRETE INLET WITH CUSTOM GRATE AND 182 LFT OF 36"ø RCP @ 0.35% WITH ONE (1) CONCRETE END SECTION. (SEE OUTLET STRUCTURE DETAIL - SHEET 403)
182 LFT OF 36"ø RCP @ 0.35%
RIM=735.83
INV Out (36"~W)=732.00

UNDERDRAIN DATA TABLE

RUN	LENGTH	SIZE	SLOPE	RUN	LENGTH	SIZE	SLOPE
1	118	6"	0.74%	8	130	6"	0.50%
2	142	6"	0.50%	9	125	6"	0.70%
3	142	6"	0.50%	10	85	6"	0.70%
4	140	6"	0.50%	11	31	6"	0.50%
5	140	6"	0.50%	12	61	6"	0.50%
6	167	6"	0.50%	13	62	6"	0.50%
7	167	6"	0.50%				

SANITARY LATERAL DATA TABLE

INSTALL XX LFT OF 6"ø SDR 35 PVC SANITARY SEWER LATERAL @ 1.04% MIN. SLOPE

RUN	LENGTH	RUN	LENGTH	RUN	LENGTH	RUN	LENGTH	RUN	LENGTH
1	52	4	18	7	52	10	18	13	52
2	18	5	52	8	18	11	52	14	18
3	52	6	18	9	52	12	18	15	52

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
247 Commerce St. • Glen Ellyn, IL 60137 • (630) 790-1333

SHEET 404

STRUCTURE DATA TABLES

HOMESTEADS AT HILLVIEW - SECTION 2

JOB No.	.	DRAWN	LMC	CHECKED	TEN	SHEET	404
DATE	JULY 17, 2014	DESIGNED	WFH	APPR.	GJI		

GREGORY J. ILKO REGISTERED PROFESSIONAL ENGINEER NO. 10300059 STATE OF ILLINOIS

NO.	DATE	REVISIONS	BY	APPR.
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SHEET 404

DIRECTORY PATH : R:\Active\John Grimmer\Hillview CC Property\CAD\PHASE 2 - PLANS
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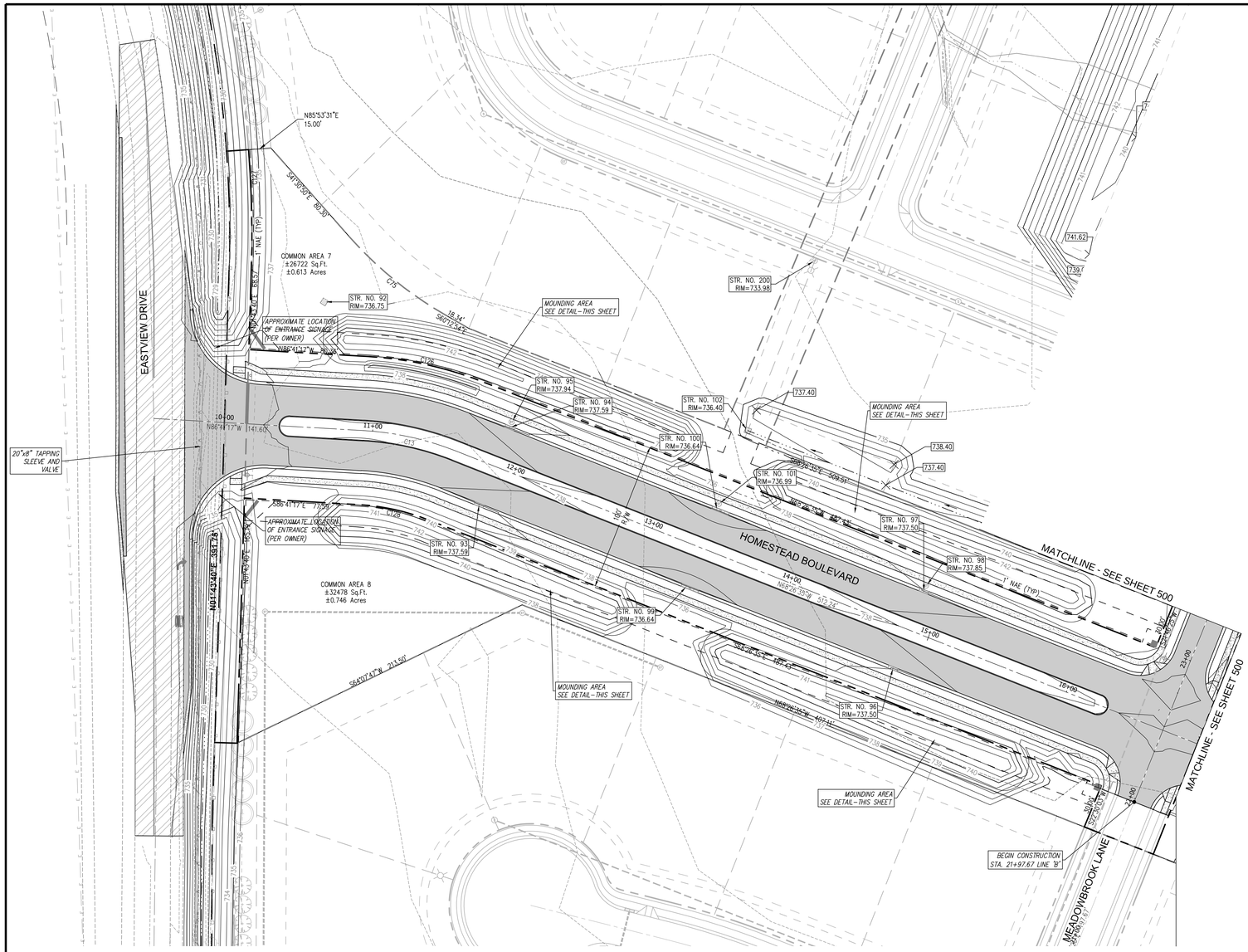
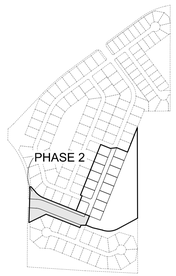
DATE/USER : 7/17/2014 12:01 PM / Leon





KEYMAP
NOT TO SCALE

40 0 40 80

SCALE: 1" = 40'

Indiana811
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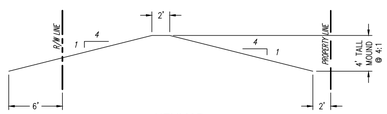
CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544 or 811
CALL TOLL FREE
PER INDIANA STATE LAW IS-69-1991, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

SEE SHEET 500 FOR LEGEND, DETAILS AND NOTES

THESE PLANS ARE BASED UPON INFORMATION FROM AN ALTA/ACSM LAND TITLE SURVEY PERFORMED BY CKW LAND SURVEYING, INC. WITH WORK ORDER NO. 130100 AND DATED JUNE 7, 2013 AND SURVEY INFORMATION PROVIDED BY JERRY WIGGINS SURVEYING.



KEYMAP
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Transportation & Development Consultants
317 Gateway Dr. Batesville, IN 47006 (812) 934-7510

SHEET 501

GRADING PLAN

HOMESTEADS AT HILLVIEW - SECTION 2

JOB No.	.	DRAWN	LMC
DATE	JULY 17, 2014	DESIGNED	WFH
		CHECKED	TEN
		APPR.	GJI

GREGORY J. ILKO REGISTERED NO. 10300059 STATE OF INDIANA PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	BY	APPR.
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SHEET 501

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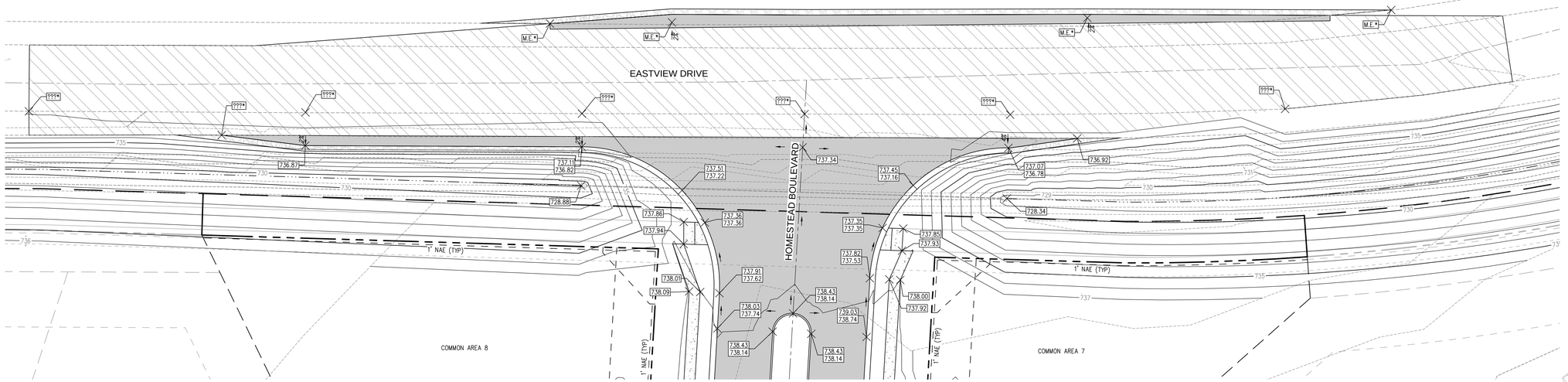

EASTVIEW DRIVE AND HOMESTEAD BOULEVARD INTERSECTION

SCALE: 1"=20'

20 0 20 40

SCALE: 1" = 20'

THESE PLANS ARE BASED UPON INFORMATION FROM AN ALTA/ACSM LAND TITLE SURVEY PERFORMED BY CKW LAND SURVEYING, INC. WITH WORK ORDER NO. 130100 AND DATED JUNE 7, 2013 AND SURVEY INFORMATION PROVIDED BY JERRY WIGGINS SURVEYING.

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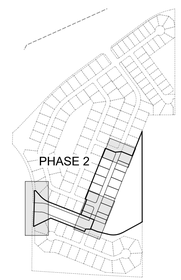

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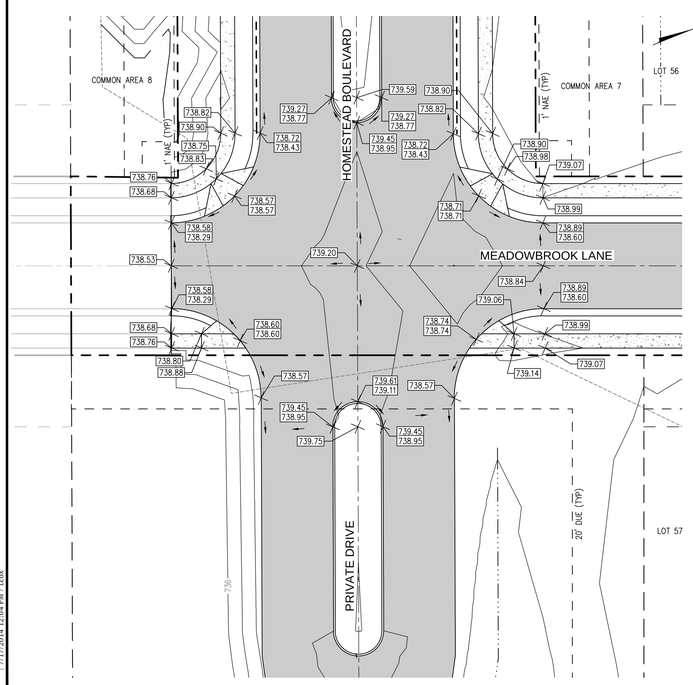
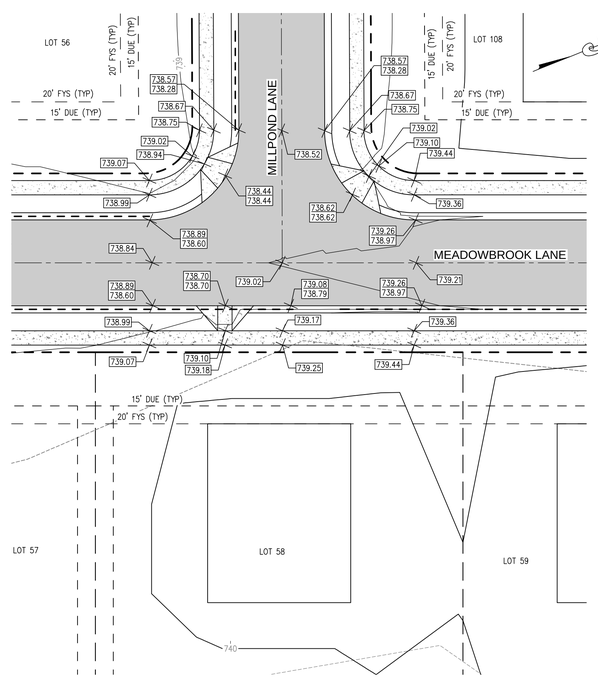


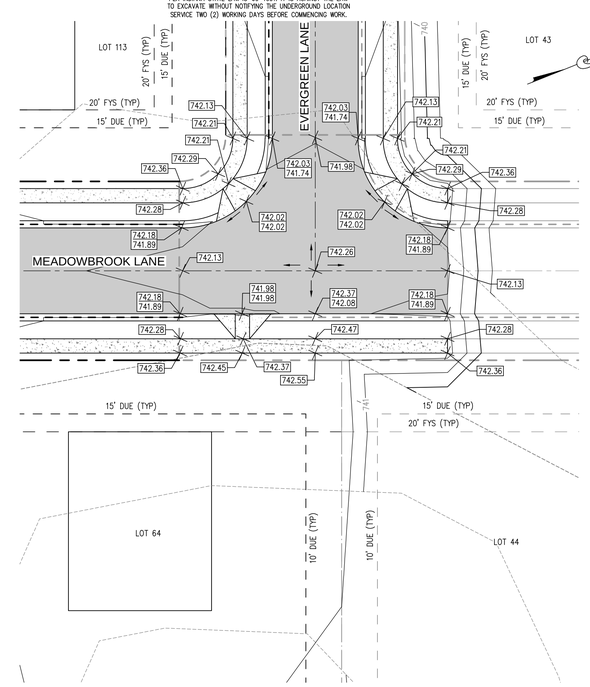
MEADOWBROOK LANE AND HOMESTEAD BOULEVARD INTERSECTION

SCALE: 1"=20'



MILLPOND LANE AND MEADOWBROOK LANE INTERSECTION

SCALE: 1"=20'



EVERGREEN LANE AND MEADOWBROOK LANE INTERSECTION

SCALE: 1"=20'

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Transportation & Development Consultants

317 Gerrard St. Beech Grove, IN 46107 (317) 780-1555

SHEET 502

INTERSECTION GRADING PLAN

HOMESTEADS AT HILLVIEW - SECTION 2

JOB No.	.	DRAWN	LMC	CHECKED	TEN
DATE	JULY 17, 2014	DESIGNED	WFH	APPR.	GJI

GREGORY J. ILKO REGISTERED NO. 10300059 STATE OF INDIANA PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	BY	APPR.
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SHEET 502

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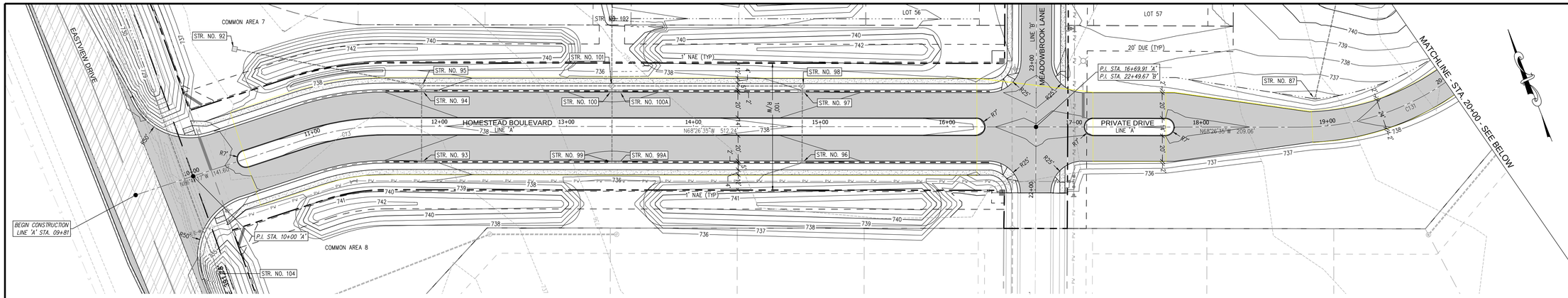

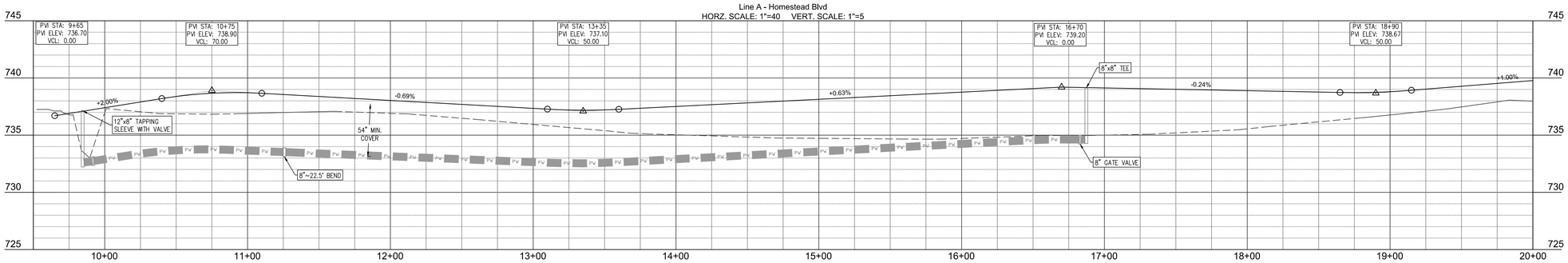

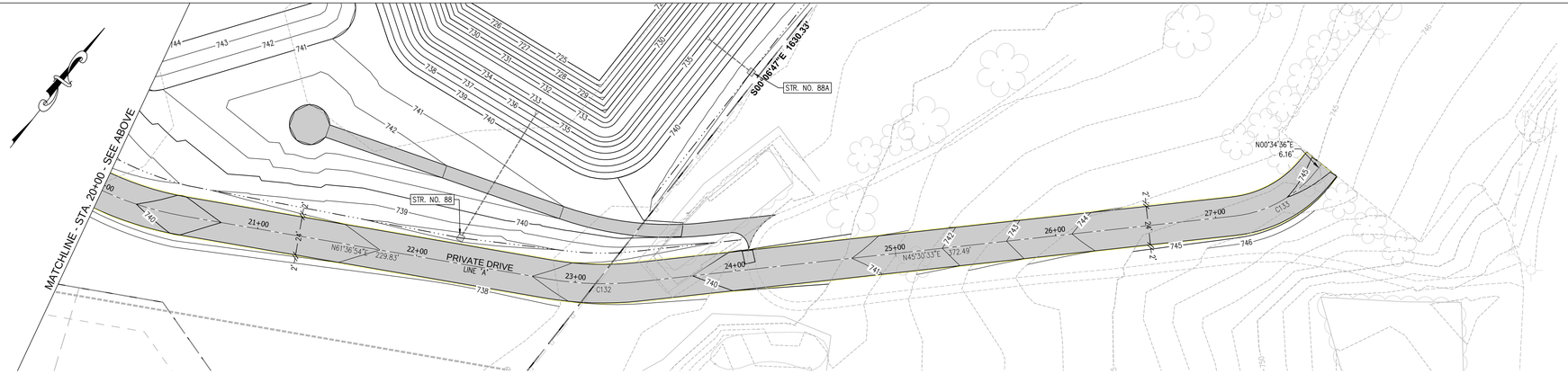

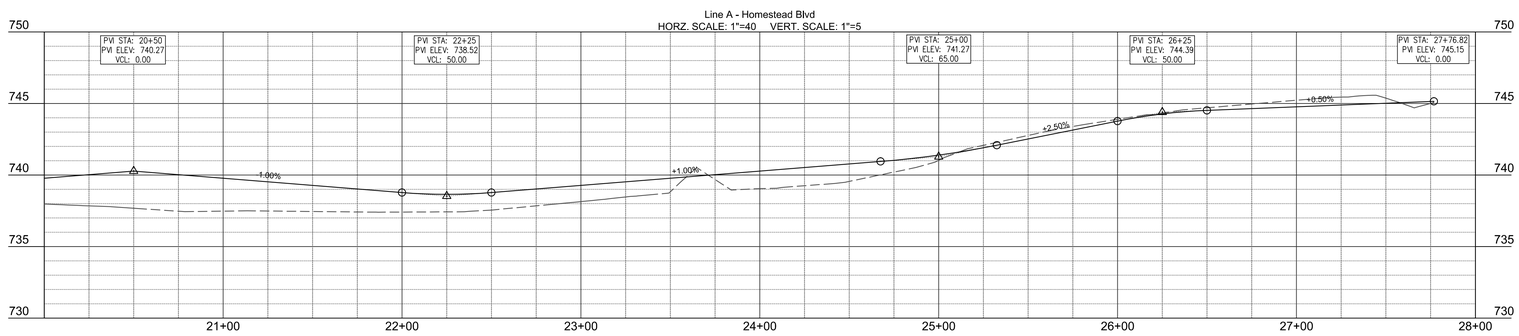

40 0 40 80

SCALE: 1" = 40'

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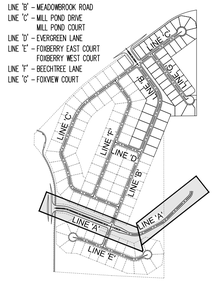
NOTE:
NO EARTHWORK DISTURBING ACTIVITY MAY COMMENCE UNTIL A STORM WATER MANAGEMENT PERMIT IS OBTAINED.

THESE PLANS ARE BASED UPON INFORMATION FROM AN ALTA/ACSM LAND TITLE SURVEY PERFORMED BY CKW LAND SURVEYING, INC. WITH WORK ORDER NO. 130100 AND DATED JUNE 7, 2013 AND SURVEY INFORMATION PROVIDED BY JERRY WIGGINS SURVEYING.

LINE "A" – HOMESTEAD BOULEVARD
LINE "B" – MEADOWBROOK ROAD
LINE "C" – MILL POND DRIVE
MILL POND COURT
LINE "D" – EVERGREEN LANE
LINE "E" – FOXBERRY EAST COURT
FOXBERRY WEST COURT
LINE "F" – BEECHTREE LANE
LINE "G" – FOXVIEW COURT



KEYMAP
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Transportation & Development Consultants
201 SEVERN St. BOLIVAR, IN 46023 (317) 392-2202

SHEET 600

ROAD PLAN AND PROFILE LINE 'A'

HOMESTEADS AT HILLVIEW - SECTION 2

JOB No.	.	DRAWN	LMC	CHECKED	TEN	SHEET	600
DATE	JULY 17, 2014	DESIGNED	WFH	APPR.	GJI		

REGISTERED GREGORY J. ILKO NO. 10300059 STATE OF INDIANA PROFESSIONAL ENGINEER

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SHEET 600

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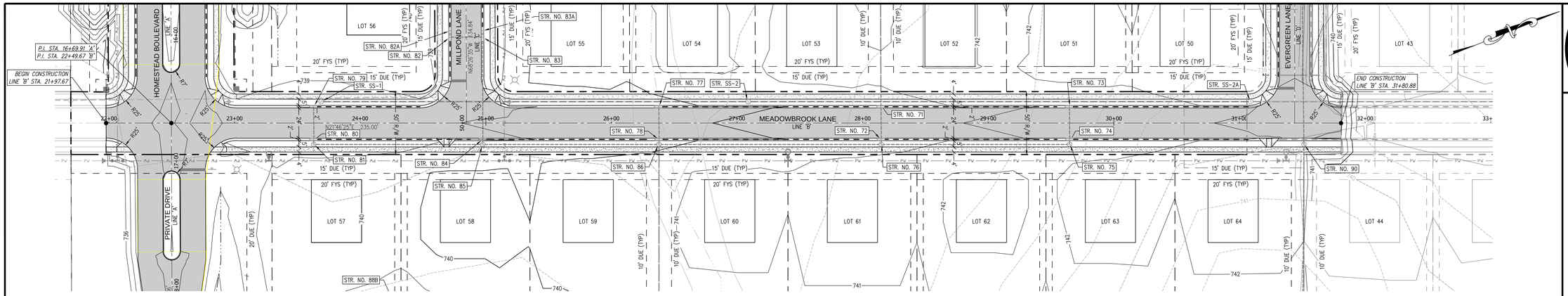

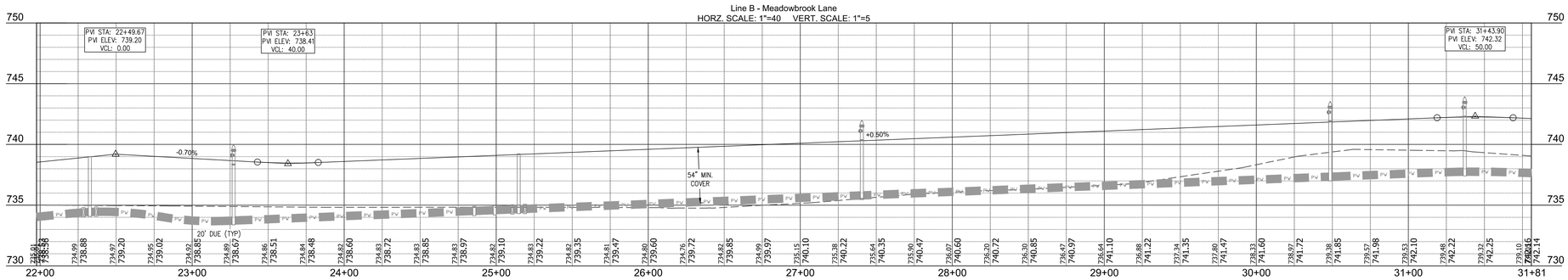

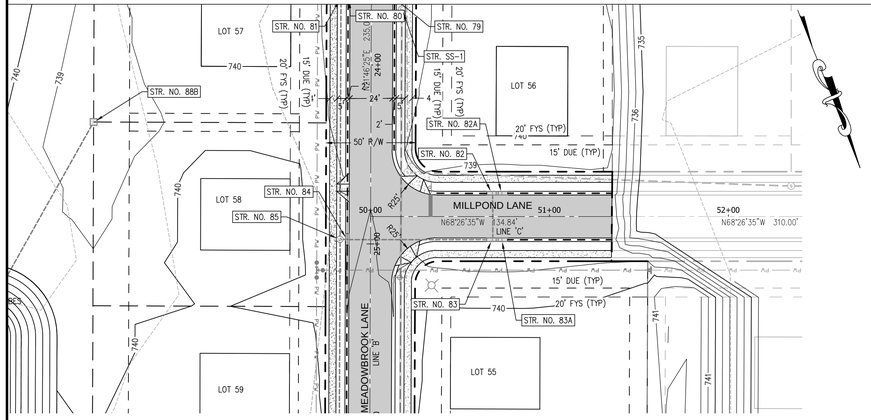

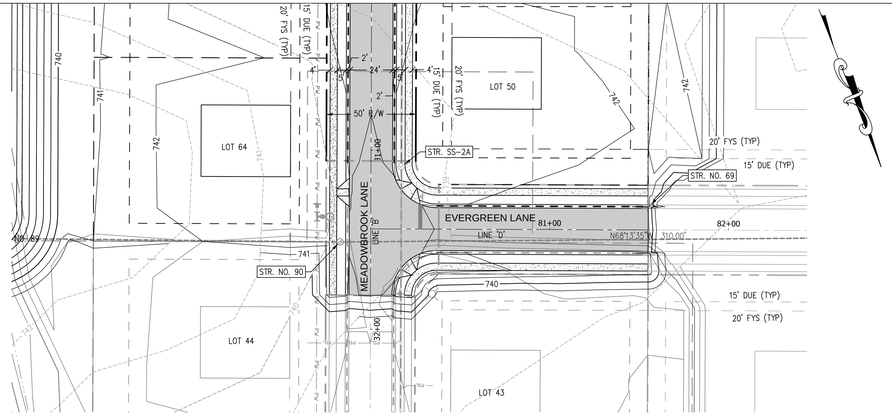

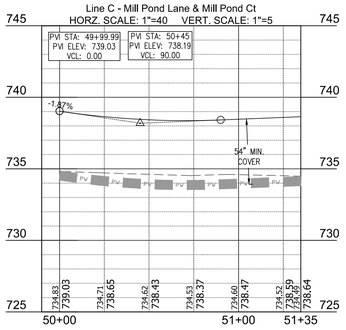

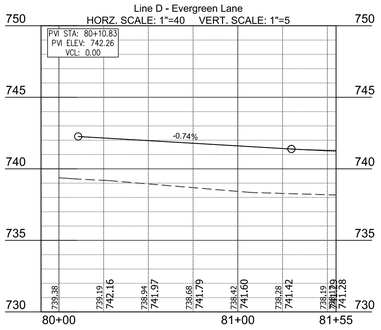

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SCALE: 1" = 40'

Indiana811

Know what's below. Call before you dig.

"IT'S THE LAW"

CALL 2 WORKING DAYS BEFORE YOU DIG

1-800-382-5544 or 811

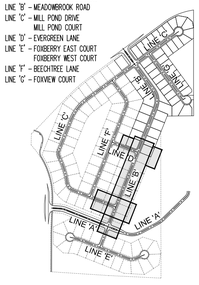
CALL TOLL FREE

PER INDIANA STATE LAW IS-69-1991, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

NOTE:
NO EARTHWORK DISTURBING ACTIVITY MAY COMMENCE UNTIL A STORM WATER MANAGEMENT PERMIT IS OBTAINED.

THESE PLANS ARE BASED UPON INFORMATION FROM AN ALTA/ACSM LAND TITLE SURVEY PERFORMED BY CKW LAND SURVEYING, INC. WITH WORK ORDER NO. 130100 AND DATED JUNE 7, 2013 AND SURVEY INFORMATION PROVIDED BY JERRY WIGGINS SURVEYING.

LINE 'A' – HOMESTEAD BOULEVARD
LINE 'B' – MEADOWBROOK ROAD
LINE 'C' – MILL POND DRIVE
MILL POND COURT
LINE 'D' – EVERGREEN LANE
LINE 'E' – FOXBERRY EAST COURT
FOXBERRY WEST COURT
LINE 'F' – BEECHTREE LANE
LINE 'G' – FOXVIEW COURT



KEYMAP
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CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
201 Ferguson St. • Bloomington, IN 46403 • (812) 336-6536

ROAD PLAN AND PROFILE LINE 'B','C' & 'D'

HOMESTEADS AT HILLVIEW - SECTION 2

JOB No.	.	DRAWN	LMC	CHECKED	TEN	SHEET	601
DATE	JULY 17, 2014	DESIGNED	WFH	APPR.	GJI		

GREGORY J. ILKO REGISTERED NO. 10300059 STATE OF INDIANA PROFESSIONAL ENGINEER

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SHEET 601

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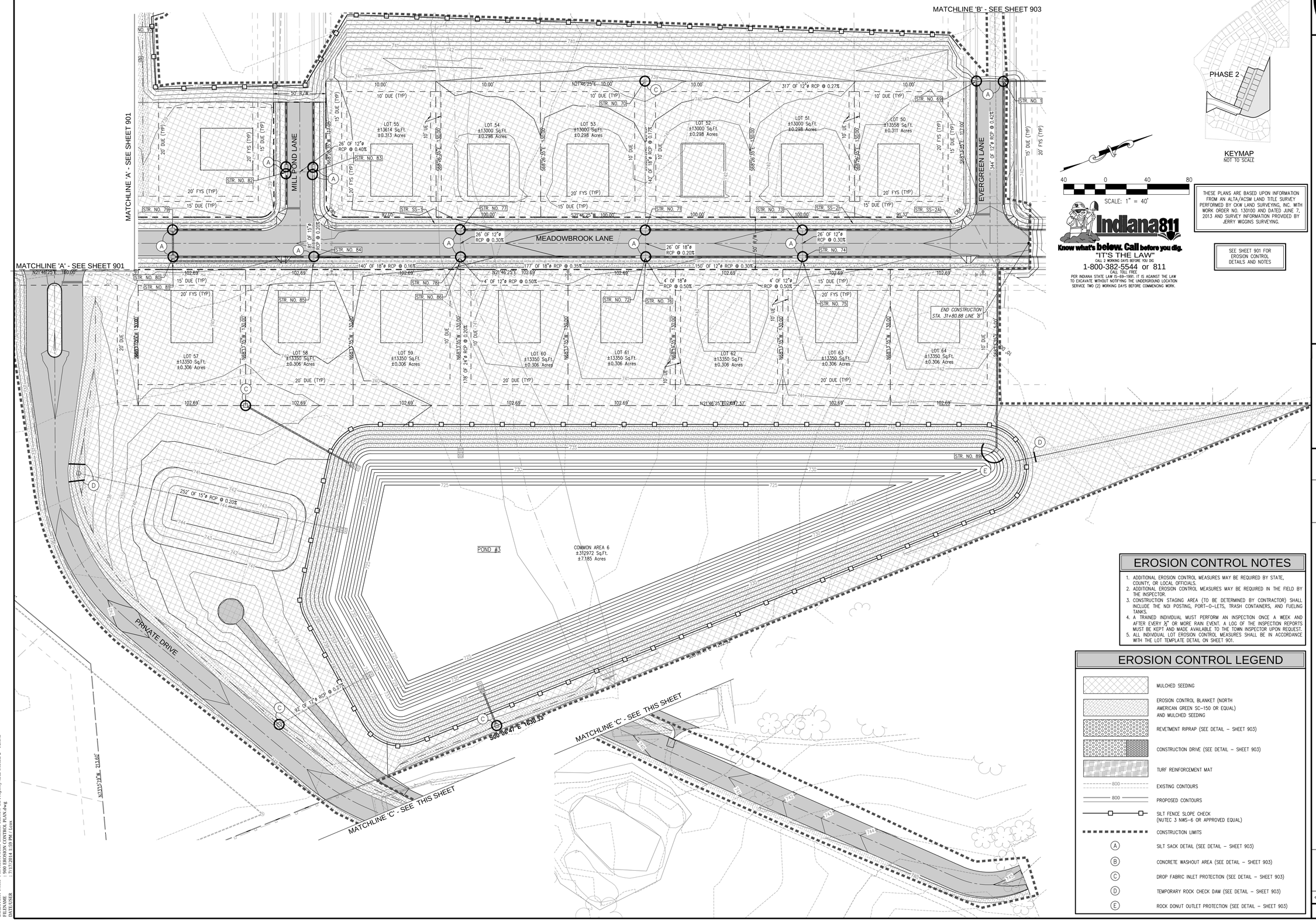

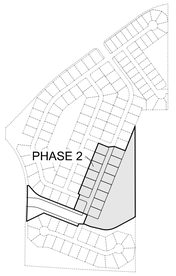

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SEE SHEET 901 FOR EROSION CONTROL DETAILS AND NOTES

EROSION CONTROL NOTES

1. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED BY STATE, COUNTY, OR LOCAL OFFICIALS.
2. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED IN THE FIELD BY THE INSPECTOR.
3. CONSTRUCTION STAGING AREA (TO BE DETERMINED BY CONTRACTOR) SHALL INCLUDE THE NOI POSTING, PORT-O-LETS, TRASH CONTAINERS, AND FUELING TANKS.
4. A TRAINED INDIVIDUAL MUST PERFORM AN INSPECTION ONCE A WEEK AND AFTER EVERY ½" OR MORE RAIN EVENT. A LOG OF THE INSPECTION REPORTS MUST BE KEPT AND MADE AVAILABLE TO THE TOWN INSPECTOR UPON REQUEST.
5. ALL INDIVIDUAL LOT EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE LOT TEMPLATE DETAIL ON SHEET 901.

EROSION CONTROL LEGEND

- MULCHED SEEDING
- EROSION CONTROL BLANKET (NORTH AMERICAN GREEN SC-150 OR EQUAL) AND MULCHED SEEDING
- REVETMENT RIPRAP (SEE DETAIL – SHEET 903)
- CONSTRUCTION DRIVE (SEE DETAIL – SHEET 903)
- TURF REINFORCEMENT MAT
- 800 EXISTING CONTOURS
- 800 PROPOSED CONTOURS
- SILT FENCE SLOPE CHECK (NUTEC 3 NWS-6 OR APPROVED EQUAL)
- CONSTRUCTION LIMITS
- (A) SILT SACK DETAIL (SEE DETAIL – SHEET 903)
- (B) CONCRETE WASHOUT AREA (SEE DETAIL – SHEET 903)
- (C) DROP FABRIC INLET PROTECTION (SEE DETAIL – SHEET 903)
- (D) TEMPORARY ROCK CHECK DAM (SEE DETAIL – SHEET 903)
- (E) ROCK DONUT OUTLET PROTECTION (SEE DETAIL – SHEET 903)

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
317 Gateway Dr. Batesville, IN 47006 (812) 934-7000

SHEET 900

EROSION CONTROL PLAN

HOMESTEADS AT HILLVIEW - SECTION 2

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SHEET 900

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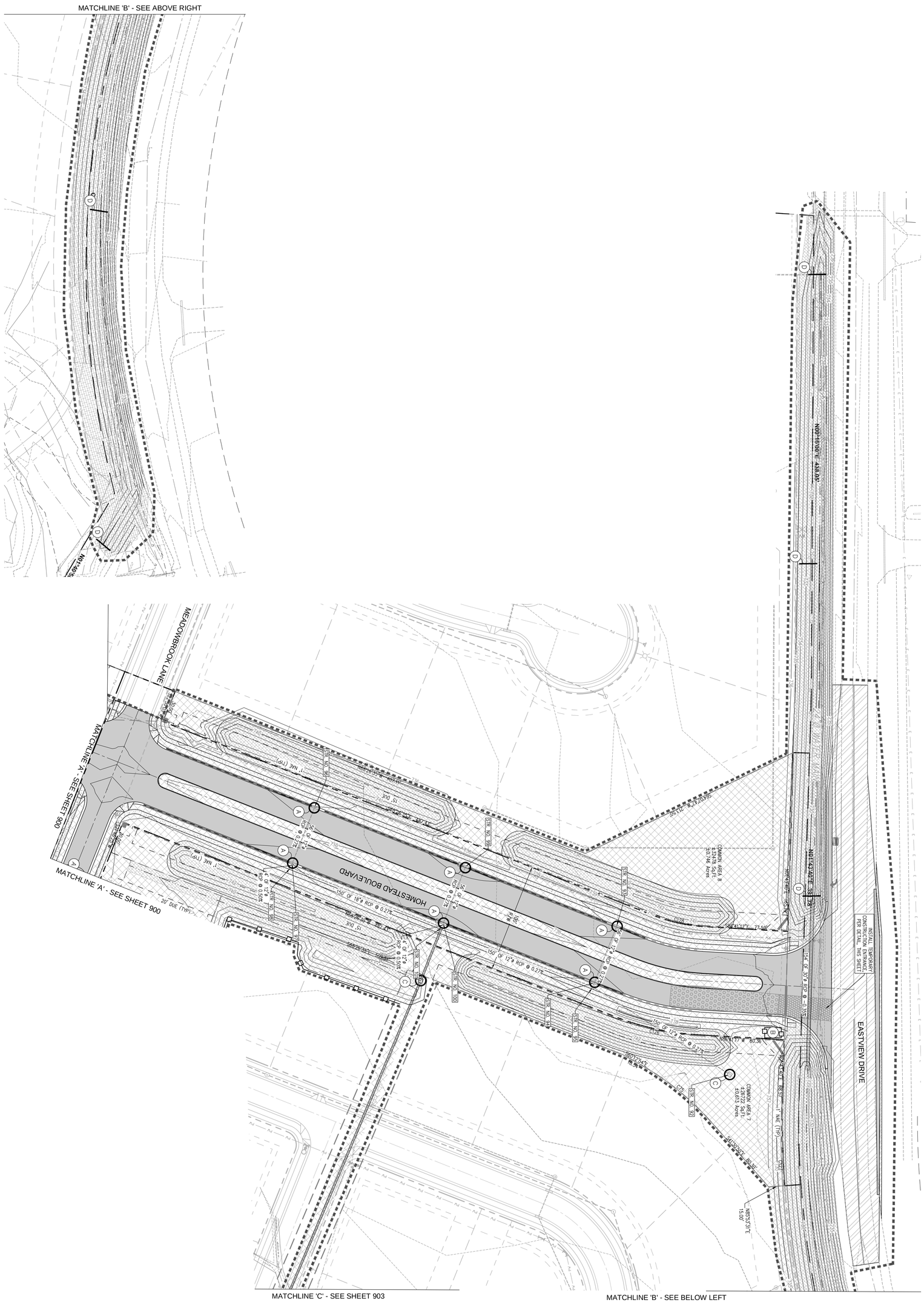

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GREGORY J. ILKO REGISTERED NO. 10300059 STATE OF INDIANA PROFESSIONAL ENGINEER

EROSION CONTROL PLAN

HOMESTEADS AT HILLVIEW - SECTION 2

JOB No.	.	DRAWN	LMC	CHECKED	TEN
DATE	JULY 17, 2014	DESIGNED	WFH	APPR.	GJI

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
317 SOUTH 25 NORTH STREET, NOBLESVILLE, INDIANA 46060 (317) 762-1555

SHEET 901

EROSION CONTROL PLAN INDEX

PLAN ELEMENTS

A2 11 BY 17 INCH PLAT
The 11x17 inch Plat has been submitted to the respective Soils and Water Conservation District.

A3 PROJECT NARRATIVE
The project involves the construction of 15 residential lots, which constitutes Section Two (2) of the over 145 Lot Residential Subdivision. Section Two is located on the south side of Upper Shelbyville Road, east of Eastview Drive. All roadways and sidewalks necessary for the development shall be constructed as part of the construction plans herein. A storm sewer system shall be utilized for stormwater collection, and will discharge to two (2) wet detention ponds, one at the east side of the site and one in the center of the site. The wet detention pond will treat for both stormwater quantity and quality requirements. Water, sanitary sewer, electric, gas and communication utilities shall serve the development as well. Construction is anticipated to begin in the in the Summer of 2014.
A4 VICINITY MAP
The Vicinity Map is located in the right half of the Erosion Control Details (this sheet).
Latitude N 39°29'25" Longitude W 86°01'50"

A5 LEGAL DESCRIPTION
The Legal Description of the project site is located in the lower right quadrant of the Erosion Control Details (this sheet).

A6 LOCATION OF ALL LOTS AND PROPOSED SITE IMPROVEMENTS
All pertinent lot information is included on the plan view of the Erosion Control Plan (Sheet 900–901). Anticipated utilities, and structures are depicted as well.

A7 HYDROLOGIC UNIT CODE
The Hydrologic Unit Code for the represented watershed of this project is: 05120204090050

A8 STATE AND/OR FEDERAL WATER QUALITY PERMITS
No State of Federal water quality permits are required for this project.

A9 STORMWATER DISCHARGE
Stormwater discharge shall leave the Section One via a 30"ø RCP.

A10 WETLANDS, LAKES AND WATER COURSES.
There are no potential wetland areas located within the project site, nor shall any potential wetland areas be disturbed as a result of construction.

A11 RECEIVING WATERS
The receiving water for this project is Hurricane Creek.

A12 POTENTIAL DISCHARGES TO GROUND WATER
There are no potential locations where stormwater may enter the groundwater.

A13 100 YEAR FLOOD PLAINS, FLOODWAYS AND FLOODWAY FRINGES
The property plots by scale as being in Zone "AE" & "X" of the Flood Insurance Rate Map (FIRM) for Johnson County, Indiana, Community Panel No. 18081 C 0232D, dated August 2, 2007. The accuracy of all flood hazard data shown on this project is subject to map scale uncertainty and to any other uncertainty in location of elevation on the recorded Flood Insurance Rate Map.

A14 POST–CONSTRUCTION PEAK DISCHARGE
Qpost Max. (10 year) = 72.69 cfs (inflow) (Section Two)
Qpost Max. (10 year) = 1.69 cfs (outflow) (Section Two)

A15 ADJACENT LANDUSE
The adjacent landuses are labeled on the Erosion Control Plan (Sheet 900–901).

A16 DISTURBED AREAS
The construction limits (boundary of disturbed area) are shown on the Erosion Control Plan (Sheet 900–901).

A17 EXISTING VEGETATIVE COVER
The existing site is largely cultivated field with some grass areas.

A18 SOILS MAP AND DESCRIPTIONS
The soils map and all pertinent soil type information are located on the upper right quadrant of the Erosion Control Details (this sheet).

A19 PROPOSED STORMWATER SYSTEMS
The proposed stormwater system sizes and dimensions are labeled on the Erosion Control Plan (Sheet 900–901).

A20 OFF–SITE CONSTRUCTION ACTIVITIES
No offsite activities will take place within this project.

A21 SOIL STOCKPILES, BORROW/DISPOSAL AREAS
Topsoil shall be stockpiled in a convenient location (as determined by the owner and/or contractor) within the construction site as shown on the Erosion Control Plan (Sheet 900–901). Pond #2 and #3 shall be used as borrow areas in the event additional soil is needed for grading.

A22 EXISTING SITE TOPOGRAPHY
Existing one–foot contours are shown on the Erosion Control Plan (Sheet 900–901).

A23 PROPOSED SITE TOPOGRAPHY
Proposed one–foot contours are shown on the Erosion Control Plan (Sheet 900–901).

STORMWATER POLLUTION PREVENTION - DURING CONSTRUCTION

B1 POTENTIAL POLLUTANT SOURCES ASSOCIATED WITH CONSTRUCTION ACTIVITIES
There is a potential for pollutants associated with construction machinery including diesel fuel, hydraulic fluid, engine oils and lubricants, antifreeze and other petroleum products. It is unavoidable for a small amount of these pollutants to contaminate soil in the grading and construction of the site. Sediment pollution from site disturbing activities shall be remedied by Erosion Control measures (see following sections).

B2 SEQUENCE OF STORMWATER QUALITY MEASURE IMPLEMENTATION
The Construction Sequence & Schedule of Erosion Control Measure Implementation is located in the upper half on the Erosion Control Details (this sheet).

B3 CONSTRUCTION ENTRANCE
The construction entrance shall be constructed at the middle section of the project off of Upper Shelbyville Road. Specifications and details are located on the Erosion Control Details (this sheet).

B4 SEDIMENT CONTROL MEASURES FOR SHEET FLOW AREAS
Sediment Control measures for Sheet flow areas are shown on the Erosion Control Plan (Sheet 900–901). Specifications and details are located on the Erosion Control Details (this sheet).

B5 SEDIMENT CONTROL MEASURES FOR CONCENTRATED FLOW AREAS
Sediment Control measures for concentrated flow areas are shown on the Erosion Control Plan (Sheet 900–901). Specifications and details are located on the Erosion Control Details (this sheet).

B6 STORM SEWER INLET PROTECTION MEASURES
Storm sewer inlet protection measures are shown on the Erosion Control Plan (Sheet 900–901). Specifications and details are located on the Erosion Control Details (this sheet).

B7 RUNOFF CONTROL MEASURES
Runoff control measures are shown on the Erosion Control Plan (Sheet 900–901). Specifications and details are located on the Erosion Control Details (this sheet).

B8 STORMWATER OUTLET PROTECTION MEASURES
Stormwater outlet protection measures are shown on the Erosion Control Plan (Sheet 900–901). Specifications and details are located on the Erosion Control Details (this sheet).

B9 GRADE STABILIZATION STRUCTURES
No grade stabilization structures are required for this project.

B10 LOCATION, DIMENSIONS, SPECIFICATIONS AND DETAILS OF EACH STORMWATER QUALITY MEASURE
Each stormwater quality measure is shown on the Erosion Control Plan (Sheet 900–901) and associated details/specifications are shown on the Drainage Plan (Sheet 402).

B11 TEMPORARY SURFACE STABILIZATION
Temporary surface stabilization methods are shown on the Erosion Control Plan (Sheet 900–901) and detailed on the Erosion Control Details (Sheet 901 and this sheet).

B12 PERMANENT SURFACE STABILIZATION
Permanent surface stabilization methods are shown on the Erosion Control Plan (Sheet 900–901) and detailed on the Erosion Control Details (Sheet 901 and this sheet).

B13 MATERIAL HANDLING AND SPILL PREVENTION
Spill prevention shall be accomplished by utilizing spillguards for equipment fueling and servicing operations. Spillguards shall be 3'x3'x6" and shall be constructed of a material resistant petroleum products (including diesel fuel and oil). On–site fuel storage tanks shall have emergency storage capacity directly below the tank in case of rupture. Any hazardous material spillage shall be collected and/or cleaned immediately by a trained individual and disposed of in accordance with all federal, state and local regulations.
Indiana Department of Environmental Management
Office of Emergency Response (317) 233–7745, Toll Free (800) 233–7745
Franklin Fire Department (317) 736–3651
Additional Material Handling and Spill Prevention (this sheet)

B14 MONITORING AND MAINTENANCE GUIDELINES
Monitoring and Maintenance Guidelines are located in the middle on the Erosion Control Details (this sheet).

B15 EROSION & SEDIMENT CONTROL MEASURES FOR INDIVIDUAL BUILDING LOTS
Shall be complicated as shown on the Lot Template Detail on Sheets 900–901.

STORMWATER POLLUTION PREVENTION - POST CONSTRUCTION

C1 PROPOSED POLLUTANTS AND SOURCES ASSOCIATED WITH PROPOSED LAND USE
Potential pollutants sources and materials may include the following:
Automobiles – Pertoleum Products (e.g. gasoline, oil/grease, ATF, etc), Hydrocarbons, Antifreeze, Trace Metals, etc.
Stormwater Runoff – Sediment, nutrients and chemicals (e.g. fertilizers, pesticides, etc)
Trash Service – Trash and debris, chemicals
Pets – Pet waste/bacteria

C2 STORMWATER QUALITY MEASURE IMPLEMENTATION
Stormwater quality measures are implemented by construction of the site improvements.

C3 PROPOSED POST CONSTRUCTION STORMWATER QUALITY MEASURES
Post construction stormwater quality measures shall consist of a wet detention pond with outlet control structure for detention and water quality purposes.

C4 LOCATION, DIMENSIONS, SPECIFICATIONS AND DETAILS OF EACH STORMWATER QUALITY MEASURE
The location of the water quality measure is at the normal pool elevation of the detention ponds, and the outlet control structure as detailed in construction plans.

C5 MAINTENANCE GUIDELINES OF POST CONSTRUCTION STORMWATER QUALITY MEASURES
The proposed outlet control structure and emergency spillway shall be inspected quarterly and after major rain events for any blockages. All obstructions and debris shall be removed upon inspection. All vegetated banks shall be maintained by mowing, removing trash and debris, and re–planting any eroded/non–vegetated areas as necessary. The pond depth shall be measured annually at the center of the pond to verify that the minimum normal pool depth is maintained.

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MONITORING AND MAINTENANCE GUIDELINES

GRAVEL CONSTRUCTION DRIVE AND PARKING AREA:
A. Inspect weekly and after each storm event and log condition per DNR.

TOPSOIL:
A. Inspect weekly until vegetation is established and log condition per DNR.

TEMPORARY AND PERMANENT SEEDING:
A. Inspect periodically, especially after storm events, until the stand is successfully established.
B. Plan to add fertilizer the following growing season according to soil test recommendations.
C. Repair damaged, bare, or sparse areas by filling any gullies, re–fertilizing, over– or re–seeding, and mulching.
D. If plant cover is sparse or patchy, review the plant materials chosen, soil fertility, moisture condition, and mulching; repair the affected area either by over–seeding or by re–seeding and mulching after re–preparing the seed bed.
E. If vegetation fails to grow, consider soil testing to determine acidity or nutrient deficiency problems.
F. If additional fertilization is needed to get a satisfactory stand, do so according to soil test recommendations.
G. Reference the latest INDOT Specification.

MULCHING:
A. Inspect after storm events to check for movement of mulch or for erosion.
B. If washout, breakage, or erosion is present, repair the surface, then re–seed, re–mulch, and , if applicable, install new netting.
C. Continue inspections until vegetation is firmly established.
D. Reference the latest INDOT Specification.

EROSION CONTROL BLANKET:
A. During vegetative establishment, inspect after storm events for any erosion below the blanket.
B. If any area shows erosion, pull back that portion of the blanket covering it, add soil, re–seed the area, and re–lay and staple the blanket.
C. After vegetative establishment, check the treated area periodically.

SILT FENCE:
A. Inspect the silt fence periodically and after each storm event.
B. If fence fabric tears, starts to decompose, or in any way becomes ineffective, replace the affected portion immediately.
C. Remove deposited sediment when it reaches half the height of the fence at its lowest point or is causing the fabric to bulge.
D. Take care to avoid undermining the fence during clean out.
E. After the contributing drainage area has been stabilized, remove the fence and sediment deposits, bring the disturbed area to grade and stabilize.

RIPRAP:
A. Inspect periodically for displaced rock material, slumping, and erosion at edges, especially downstream or downslope.

FABRIC DROP INLET PROTECTION:
A. Inspect the fabric barrier after storm events, and make needed repairs immediately.
B. Remove sediment from the pool area to provide storage for the next storm. Avoid damaging or undercutting the fabric during sediment removal.
C. When the contributing drainage area has been stabilized, remove and properly dispose of all construction material and sediment, grade the area to the elevation of the top of the inlet, then stabilize.

SILT SACK INLET PROTECTION:
A. Inspect the silt sack inlet protection periodically and after each ½" storm event.
B. Remove deposited sediment when it reaches half the height of the filter at the lowest point.
C. Remove the Silt Sack Inlet Protection and sediment deposits after contributing drainage area is stabilized.

ROCK CHECK DAM:
A. Inspect the check dam and channel after each storm event, and repair any damage immediately.
B. If significant erosion occurs between dams, install a riprap liner in that portion of the channel.
C. Remove sediment accumulated behind each dam as needed to maintain channel capacity, to allow drainage through the dam, and to prevent large flows from displacing sediment.
D. Add rock to the dams as needed to maintain design height and cross section.
E. When the dams are no longer needed, remove the rock and stabilize channel, using an erosion–resistant lining if necessary.

CONSTRUCTION SEQUENCE & SCHEDULE OF EROSION CONTROL IMPLEMENTATION

1. Schedule a pre–construction meeting with Johnson County SWCD and City of Franklin Engineering Department 48 hours prior to start of earthwork.
2. Silt fence and all other erosion control measures shall be placed around existing structures and in ditches as shown in these plans before any land disturbing activities are started.
3. Construct temporary gravel entrance in accordance with the "INDIANA STORM WATER QUALITY MANUAL". All other erosion control measures shall be installed and constructed as shown at the beginning of the project.
4. Strip topsoil and stockpile as shown.
5. Construct detention pond and install respective outlet structures.
6. Rough grade site. Disturbed areas should be seeded immediately following rough grading. Areas that will not be disturbed again should be permanently seeded. No unvegetated areas should be exposed for more than seven days.
7. Place drainage structures. Erosion control measures shall be placed around proposed structures as soon as they are in place and until vegetation is secure.
8. Final grade site. All erosion control blankets shall be installed per manufacturers recommendations as soon as final grading is complete.
9. Final paving operations. Temporary erosion control measures shall remain in place until vegetation is secure.

GENERAL EROSION CONTROL REQUIREMENTS FOR COMPLIANCE WITH IDEM GENERAL PERMIT RULES FOR STORM WATER RUNOFF FROM CONSTRUCTION SITES

1. All Erosion Control practices shall be in accordance with the latest edition of the INDIANA STORM WATER QUALITY MANUAL.
2. The Erosion Control measures included in this plan shall be installed prior to initial land disturbance activities or as soon as practical. Sediment shall be prevented from discharging from the project site by installing and maintaining silt fence, straw bales, sediment basins, etc. As shown on this plan. If shown on this plan, energy–dissipation devices or Erosion Control at the outfall of the storm sewer system shall be installed at the time of the construction of the outfall.
3. All on–site storm drain inlets shall be protected against sedimentation with silt sack inlet filters, filter fabric, or equivalent barriers as shown on this plan.
4. Except as prevented by inclement weather conditions or other circumstances beyond the control of the contractor/developer appropriate Erosion Control practices will be initiated within (7) seven days of the last land disturbing activity at the site. The site shall be stabilized by seeding, sodding, mulching, covering, or by other equivalent Erosion Control measures.
5. This Erosion Control plan shall be implemented on all disturbed areas within the construction site. All measures involving Erosion Control practices shall be installed under the guidance of a qualified person experienced in Erosion Control and following the plans and specifications included herein.
6. During the period of construction activity, all sediment basins and other Erosion Control measures shall be maintained by the contractor. At the completion of construction, the contractor shall coordinate the transfer of required maintenance responsibilities with the owner.
7. Public or private roadways shall be kept cleared of accumulated sediment. Bulk clearing of accumulated sediment shall not include flushing the area with water. Cleared sediment shall be returned to the point of likely origin or other suitable location.
8. The contractor shall control wastes, garbage, debris, wastewater, and other substances on the site in such a way that they shall not be transported from the site by the action of winds, storm water runoff, or other forces. Proper disposal or management of all wastes and unused building materials appropriate to the nature of the waste or material is required.
9. Additional Erosion Control measures may be required by state or county agencies.

ADDITIONAL MATERIAL HANDLING AND SPILL PREVENTION PLAN

A. Purpose
The purpose of this plan is two fold:
1. To help protect the health and safety of those working on the site as well as the environment.
2. Preventing the contamination of storm water runoff. Pollutants generated onsite may include gasoline, diesel fuel, oils, grease, paints, pesticides, nutrients, concrete washout, soil, solvents, paper, plastic, Styrofoam, metals, glass and other forms of liquid or solid wastes.

This plan outlines procedures to help prevent health and safety issues, contamination of storm water by onsite pollutants, help prevent fuel and chemical spills and provide a response procedure should a spill occur.

B. **Prevention and Readiness**
1. The contractor or responsible party will prepare a contact list in the event of a spill on the site. The contact list will have names and contact numbers. The contact list will specify first responders and a chain of command. Include information on what circumstances require the initiation of the contact list and chain of command.
2. The contractor/owner shall maintain a list of qualified contractors, Vac–trucks, tank pumpers and other equipment or businesses qualified to do clean–up operations. Absorbent materials and supplies need to be available onsite in sufficient quantities to address minor spills. All employees need to be educated on the proper application of the absorbent materials.
3. All maintenance and equipment operators must be aware and trained for prevention of spills. A continuing education program is required for new employees and emphasizing the importance to all employees.
4. All materials used in the course of a cleanup will be disposed in a manor approved by Indiana Department of Environmental Management.
5. Using water to flush spilled material will not be permitted unless authorized by a state, federal, or local agency. Tarps can be used to cover spilled material during rain events.

C. **Spill Response**
Minor – Small spills that typically involve oil gasoline, paint, hydraulic fluid etc. Minor spills can be controlled by the first responder at the discovery of the spill.
- Contain spill to prevent material from entering storm or ground water. Do not flush with water or bury.
- Use absorbent material to clean–up spill material and any subsequently contaminated soil and dispose of properly.

Semi–significant Spills – Approximately ten gallons or less of pollutant with no contamination of ground or surface waters. Minor spills can be generally controlled by the first responder with help from other site personnel. This response may require other operations to stop to make sure the spill is quickly and safely addressed. At the discovery of the spill:
- Contain spill to prevent material from entering storm or ground water. Do not flush with water or bury.
- Use absorbent material to clean–up spills and dispose of properly. Spills on impervious surfaces should be contained with a dry absorbent. Spills on clayey soils should be contained by constructing an earthen dike and should be disposed of as soon as possible to prevent migration deeper into the soil and groundwater. Dispose of contaminated soils or absorbents properly.
- Contact 911 if this spill could be a safety issue.
- Contact supervisors and designated inspectors immediately
- Contaminated solids to be removed to an approved landfill.

Major or Hazardous Spills – More than ten gallons, there is the potential for death, injury or illness to humans or animals or has the potential for surface or groundwater pollution.
- Control or contain the spill without risking bodily harm. Temporarily plug storm drains if possible to prevent migration of the spill into the stormwater system.
- Immediately contact the local Fire Department at 911 to report any hazard material spill.
- Contact supervisors and designated inspectors immediately. Other county or municipal officials (list as needed) responsible for storm water facilities should be contacted as well. The contractor is responsible for having these contact numbers available at the job site. A written report should be submitted to the owner as soon as possible.
- As soon as possible but within 2 hours of discovery, contact the Department of Environmental Management,
  Office of Emergency Response 1–888–233–7745. The following information should be noted for future reports to IDEM or the National Response Center.
  - o Name, address and phone number of person making the spill report
  - o The location of the spill
  - o The time of the spill
  - o Identification of the spilled substance
  - o Approximate quantity of the substance that has been spilled or may be further spilled
  - o The duration and source of the spill
  - o Name and location of the damaged waters
  - o Name of spill response organization
  - o What measures were taken in the spill response
  - o Other information that may be significant

Additional regulation or requirements may be present. A spill response professional should be consulted to make sure all appropriate and required steps have been taken. Contaminated solids should only be removed from the site after approval is given by Emergency Response.

D. **The following procedures and practices will help prevent unnecessary spills**

I. Vehicle and Equipment Fueling

Description and Purpose:
- Vehicle equipment fueling procedures and practices are designed to prevent fuel spills and leaks, and reduce or eliminate contamination of stormwater. This can be accomplished by using offsite facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees and subcontractors in proper fueling procedures.

Limitations:
- Onsite vehicle and equipment fueling should only be used where it is impractical to send vehicles and equipment offsite for fueling.

Implementation:
- Use offsite fueling stations as much as possible. These businesses are better equipped to handle fuel and spills properly. Performing this work offsite can also be economical by eliminating the need for a separate fueling area at a site.
- Discourage "topping–off" of fuel tanks.
- Absorbent spill cleanup materials and spill kits should be available in fueling areas and on fueling trucks, and should be disposed of properly after use.
- Drip pans or absorbent pads should be used during vehicle and equipment fueling, unless the fueling is performed over an impermeable surface in a dedicated fueling area.
- Use absorbent materials on small spills. Do not hose down or bury the spill. Remove the absorbent materials promptly and dispose of properly.
- Avoid mobile fueling of mobile construction equipment around the site; rather, transport the equipment to designated fueling areas.
- Train employees and subcontractors in proper fueling and cleanup procedures.
- Dedicated fueling areas should be protected from stormwater run–on and runoff, and should be located at least 50 feet away from the downstream drainage facilities and watercourses. Fueling must be performed on level–grade areas.
- Protect fueling areas with berms and dikes to prevent run–on, runoff, and to contain spills.
- Nozzles used in vehicle and equipment fueling should be equipped with an automatic shutoff to control drips. Fueling operations should not be left unattended.
- Federal, state, and local requirements should be observed for any stationary above ground storage tanks.

Inspection and Maintenance
- Vehicles and equipment should be inspected each day of use for leaks. Leaks should be repaired immediately or problem vehicles or equipment should be removed from the project site.
- Keep ample supplies of spill cleanup materials onsite.
- Immediately clean up spills and properly dispose of contaminated soils.

II. Solid Waste Management

Description of Purpose:
- Solid waste management procedures and practices are designed to prevent or reduce the discharge of pollutants to stormwater from solid or construction waste by providing designated waste collection areas and containers, arranging for regular disposal, and training employees and subcontractors.

Suitable Applications:
This BMP is suitable for construction sites where the following wastes are generated or stored:

- Solid waste generated from trees and shrubs removed during land clearing, demolition of existing structures (rubble), and building construction.
- Packaging materials including wood, paper, and plastic.
- Scrap or surplus building materials including scrap metals, rubber, plastic, glass pieces, and masonry products.
- Domestic wastes including food containers such as beverage cans, coffee cups, paper bags, plastic wrappers, and cigarettes,
- Construction waste including brick, mortar, timber, steel and metal scraps, pipe and electrical cuttings, non–hazardous equipment parts. Styrofoam and other materials send transport and package construction materials.

Implementation:
The following steps will help keep a clean site and reduce stormwater pollution:
- Select designated waste collection areas onsite.
- Inform trash–hauling contractors that you will accept only watertight dumpsters for onsite use.
- Inspect dumpsters for leaks and repair any dumpster that is not watertight.
- Provide an adequate number of containers with lids or covers that can be placed over the container to keep rain out or to prevent loss of wastes when it is windy.
- Plan for additional containers and more frequent pickup during the demolition phase of construction.
- Collect site trash daily, especially during rainy and windy conditions.
- Remove this solid waste promptly since erosion and sediment control devices tend to collect litter.
- Make sure that toxic liquid wastes (used oils, solvents, and paints) and chemicals (acid, pesticides, additives, curing compounds) are not disposed of in dumpsters designed for construction debris.
- Do not hose out dumpsters on the construction site. Leave dumpster cleaning to the trash hauling contractor.
- Arrange for regular waste collection before containers overflow.
- Clean up immediately if a container does spill.
- Make sure that construction waste is collected, removed, and disposed of only at authorized disposal areas. Solid waste storage areas should be located in areas prone to flooding or ponding.
- Locate solid waste dumpster a minimum of 50' away from storm water inlets or other drainage facilities.
- Locate dumpster on stone or earth to minimize the potential for spills or leaks to drain immediately into a drainage facility.

Inspection and Maintenance:
- Inspect and verify that activity–based BMPs are in place prior to the commencement of associated activities. While activities associated with the BMP are under way, inspect weekly to verify continued BMP implementation.
- Inspect BMPs subject to non–stormwater discharge daily while non–stormwater discharges occur.
- Inspect construction waste are regularly.
- Arrange for regular waste collection.

III. Concrete Washout

The following steps will help reduce stormwater pollution from concrete wastes:
- Discuss the concrete management techniques described in the BMP (such as handling of concrete waste and washout) with the reddy–mix concrete supplier before any deliveries are made.
- Incorporate requirements for concrete waste management into material supplier and subcontractors' agreements.
- Store dry and wet materials under cover, away from drainage areas.
- Avoid mixing excess amounts of fresh concrete.
- Perform washout of concrete trucks offsite or in designed areas only.
- Do not wash concrete trucks into storm drains open ditches, streets, or streams.
- Do no allow excess concrete to be dumped onsite, except in designed areas.

For onsite washout:
- Locate washout areas at least 50 feet from storm drains, open ditches, or water bodies.
- Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste.
- Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed properly.
- Avoid creating runoff by drinking water to a bermed or level area when washing concrete to remove fine particles and expose the aggregate.
- Do not wash sweepings form exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile or dispose in the trash.

IV. Vehicle Maintenance Areas
Purpose– To prevent spills during the normal maintenance of construction machinery.

Implementation– Where and when feasible, maintenance shall be preformed offsite in covered facility with an impervious floor.
- Use a dedicated site for machinery maintenance
- Site the maintenance area at least 50 feet from storm water inlets or water bodies
- Maintain clean up materials close at hand. Utilize drip pans and absorbent pads to prevent oils from reaching the soil surface.
- Inspect equipment daily for leaks or worn hoses. Repair or replace to prevent onsite spills
- Properly dispose of all fluids removed or spilled from machinery.

V. Fluids, paints, solvents and other chemicals storage and use

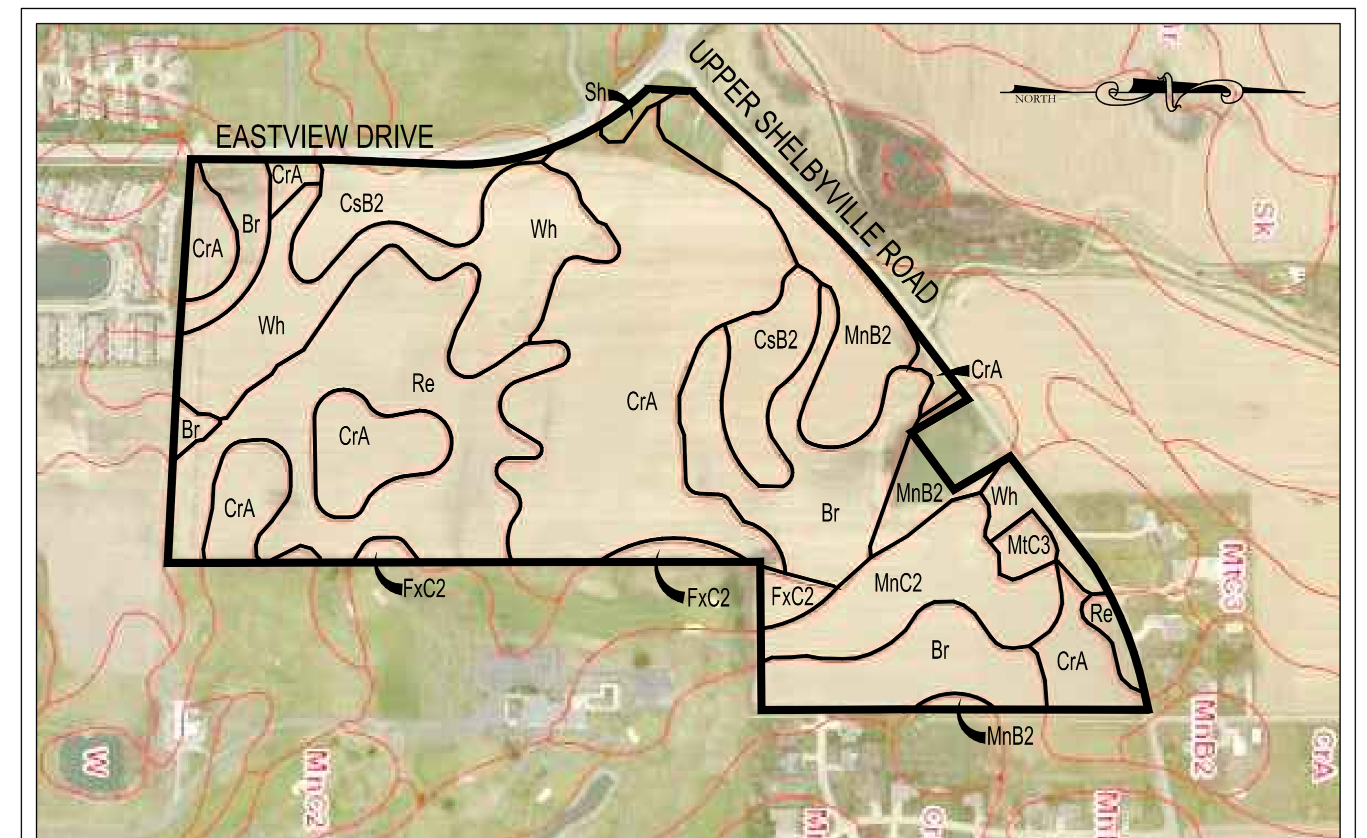
Purpose– To prevent spills during the use and storage of the materials

Implementation–
- Store materials in there original containers
- Maintain safety data sheets on all products
- Store materials in a weather proof/vandal resistant locker or building
- Keep materials away from flammable sources
- Provide and read instructions for the proper use and storage of all materials
- For bulk material stored onsite, provide diking or double containment in case of leaks or failures.
- No washout of solvent from paint supplies should be done near or into a storm water inlet or other drainage facility.

VI. Disposal of sediment laden water

Purpose– To prevent the purposeful discharge of sediment laden water into waters of the United States.

Implementation–
- The sediment and any other pollutant from all pumping or dewatering operations that discharge into storm sewers, wetlands, drainage ways or water bodies must be removed from the water before it's discharged.
- A suitable practice is needed at the discharge to allow the suspended solids to be removed from the water column. Slow moving water and time are needed components for an effective practice. Mechanical filters and chemical flocculants can do an excellent job of removing the fine materials.
- Sediment removal pumping bags may be used at the outlet of a pump. The bags must be sized appropriately for the amount of flow. The practice needs to be installed on erosion resistant surfaces. The outlet of the pumping bag must be erosion resistant to prevent additional sedimentation.
- Pumping operations that are moving clean water through a site are not required to have a pumping bag or similar device at the outlet. The point of discharge should be protected to prevent soil erosion.



Johnson County, Indiana (IN081)

BROOKSTON SILTY CLAY LOAM (BR)
This nearly level soil is in depressions, on flats, and in narrow drainageways between better drained soils on broad, undulating plains. Slopes are 0 to 2 percent. Runoff is very slow. Wetness is the main limitation.

CROSBY SILT LOAM (CrA)
This nearly level soil is on broad plains, on ridge tops in rolling areas, or in low drainageways. Slopes are 0 to 2 percent. Runoff is slow. Wetness is the main limitation.

CROSBY-MIAMI SILT LOAMS, eroded (CsB2)
This gently sloping mapping unit is on broad, slightly undulating plains; on knolls of broad, nearly level plains; and at the heads of drainageways. Slopes are 2 to 4 percent. Runoff is medium. Moderate erosion is the main limitation.

FOX COMPLEX, eroded (FxC2)
This moderately sloping and strongly sloping mapping unit is on side slopes of drainageways, on steep breaks, and on side slopes of hummocky kames and eskers. Slopes are 6 to 15 percent. Runoff is medium. Moderate erosion is the main limitation.

MIAMI SILT LOAM (MnB2)
This gently sloping soil is along drainageways that cross areas of somewhat poorly drained Crosby soils. Slopes are 2 to 6 percent. Runoff is medium. Moderate erosion is the main limitation.

MIAMI SILT LOAM, eroded (MnC2)
This moderately sloping soils is on irregularly shaped knolls surrounded by gently sloping and nearly level soils; in long narrow bands around ridgetops; along drainageways leading to terraces or bottom land; and on undulating moraines. Slopes are 6 to 12 percent. Runoff is medium. Moderate erosion is the main limitation.

MIAMI SILT LOAM, severely eroded (MtC2)
This moderately sloping soils is on irregularly shaped knolls surrounded by gently sloping and nearly level soils; in long narrow bands around level soils on ridgetops; along drainageways of terraces and bottom lands; and on side slopes of undulating moraines. Slopes are 6 to 12 percent. Severely erosion is the main limitation.

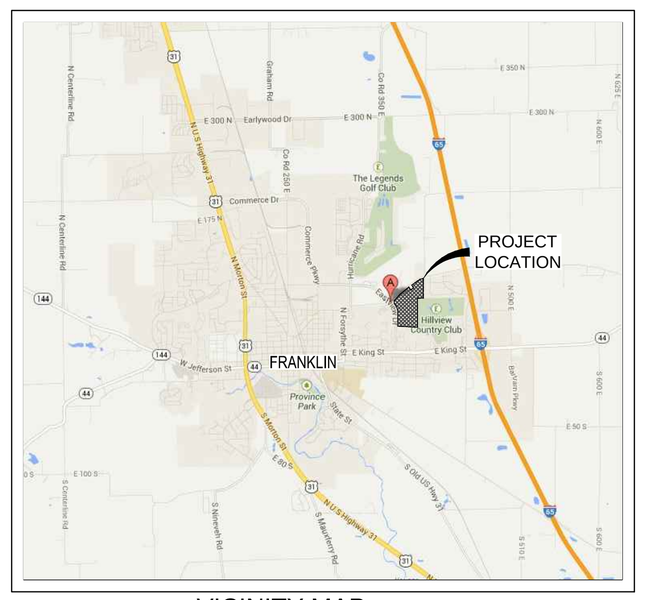
RENSSELAER CLAY LOAM (Re)
This nearly level soil is in slightly depression areas of broad outwash plains and in old glacial drainageways and lake basins. Slopes are 0 to 2 percent. Runoff is very slow or ponded. Wetness is the main limitation.

SHOALS SILT LOAM (Sh)
This nearly level soil is on narrow flood plains along meandering streams and in low–lying, weakly defined drainageways of large river bottom lands. Slopes are 0 to 2 percent. Runoff is slow. Flooding and Wetness is the main limitation.

WHITAKER SILT LOAM (Wh)
This nearly level soil is surrounded by very poorly drained Rensseler or Westland soils or is surrounded by or at toe slopes of well drained Martinsville soils on outwash plains and terraces and in old glacial drainageways. Slopes are 0 to 2 percent. Runoff is very slow. Wetness is the main limitation.

SOIL MAP AND DESCRIPTION
NOT TO SCALE

ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED BY STATE OR COUNTY OFFICIALS



VICINITY MAP
NOT TO SCALE

Indiana811
Know what's below. Call before you dig.
"IT'S THE LAW"
CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544 or 811
CALL TOLL FREE
PER INDIANA STATE LAW IS–69–1991. IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

	SOIL CONDITION WET	SOIL CONDITION NORM	SOIL CONDITION DRY	SHADE TOLERANCE	CLOSE MOWING TO 2–3 1/2 INCHES	TRAMPING TOLERANCE	FERTILITY NEEDS	WINTER HARDINESS	FLOODING TOLERANCE (DAYS)	MATURE HEIGHT (INCHES)	EMERGENCE TIME (DAYS)	SALT TOLERANCE GEN.	SALT TOLERANCE SOIL	SALT TOLERANCE SPRAY
CREEPING RED FESCUE FESTUCA RUBRA	2	1	2	1	1	1	MED.	1	20–25	12–18	7–21			S
KENTUCKY BLUEGRASS POA PROTINSIS	2	1	2	1	1	1	MED.	1	25–35	12–18	10–20			MT
TALL FESCUE FESTUCA L ARUNDINACEA	2	1	1	1	1	1	LOW	1	24–35	24–36	5–14		T	
PERENNIAL RYEGRASS LOLIUM PERENNE	2	1	2	–	1	2	MED–HIGH	2	15–20	12–18	5–10		MT	
CROWNVETCH CORANILLA VARIA	–	1	1	2	–	–	LOW	1	5–10	24	14–21	T		
RED CLOVER TRIFOLIUM PRATENSE	–	1	–	2	–	–	MED.	1	7–10	18	5–10	S	S	

RANKING
1 GOOD
2 MEDIUM
– NOT TOLERANT

SALT TOLERANCE (TO BOTH SOIL SALTS AND SPRAY)
T – TOLERANCE
MT – MEDIUM TOLERANCE
S – SLIGHT TOLERANCE

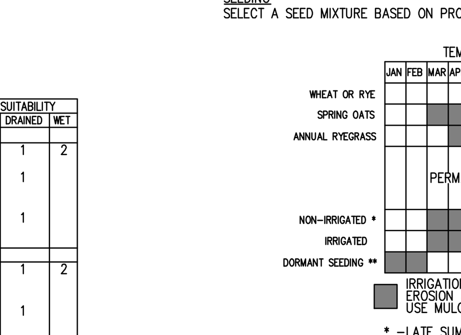
SEEDBED PREPARATION
APPLY LIME TO RAISE THE pH TO THE LEVEL NEEDED FOR SPECIES BEING SEEDED. APPLY 23 LBS. OF 12–12–12 ANALYSIS FERTILIZER (OR EQUIVALENT) PER 1,000 SQ. FT. (APPROXIMATELY 1,000 LBS. PER ACRE) OR FERTILIZE ACCORDING TO TEST. APPLICATION OF 150 LBS. OF AMMONIUM NITRATE ON AREAS LOW IN ORGANIC MATTER AND FERTILITY WILL GREATLY ENHANCE VEGETATIVE GROWTH. WORK THE FERTILIZER AND LIME INTO THE SOIL A DEPTH OF 2 TO 3 INCHES WITH A HARROW, DISK, OR RAKE OPERATED ACROSS THE SLOPE AS MUCH AS POSSIBLE.
FERTILIZER AND LIME SHALL MEET REQUIREMENTS OF INDOT STANDARD SPECIFICATIONS 1995.
SEEDING
SELECT A SEED MIXTURE BASED ON PROJECTED USE OF THE AREA WHILE CONSIDERING BEST SEEDING DATES.

PERMANENT SEED MIXTURES

SPECIES	SEEDING RATE LBS/ACRE	SUITABLE pH	SITE SUITABILITY DROUGHTY	SITE SUITABILITY DRAINED	SITE SUITABILITY WET
LEVEL AND SLOPING, OPEN AREAS					
TALL FESCUE	35	5.5 – 8.3	2	1	2
TALL FESCUE RED CLOVER **	25 5	5.5 – 8.3		1	
KENTUCKY BLUEGRASS CREEPING RED FESCUE	15 15	5.5 – 7.5	2	1	
STEEP BANKS AND CUTS					
TALL FESCUE KENTUCKY BLUEGRASS	15 25	5.8 – 7.5	2	1	2
TALL FESCUE EMERALD CROWNVETCH **	35 10	5.5 – 8.3	2	1	
LAWNS AND HIGH MAINTENANCE AREAS					
KENTUCKY BLUEGRASS CREEPING RED FESCUE	40 40	5.8 – 7.5	2	1	
PERENNIAL RYEGRASS (TURF TYPE)	170	5.0 – 7.5		1	
TALL FESCUE	170	5.5 – 8.3	2	1	2

1–PREFERRED 2–WILL TOLERATE ** – INOCULATE WITH SPECIFIC INOCULATES

TEMPORARY SEEDING DATES



IRRIGATION NEEDED DURING THIS PERIOD. TO CONTROL EROSION AT TIMES OTHER THAN IN THE SHADED AREAS, USE MULCH.
* –LATE SUMMER SEEDING DATES MAY BE EXTENDED 5 DAYS IF MULCH IS APPLIED.
** –INCREASE SEEDING APPLICATION BY 50%.

TEMPORARY SEEDINGS

KIND OF SEED	PER 1,000 SQ. FT.	PER ACRE	REMARKS
WHEAT OR RYE	3.5 LBS.	2 BU.	COVER SEED 1" TO 1 1/2" DEEP
SPRING OATS	2.3 LBS.	3 BU.	COVER SEED 1" DEEP
ANNUAL RYEGRASS	1.0 LBS.	40 LBS.	COVER SEED 1/4" DEEP *

* NOT NECESSARY WHERE MULCH IS APPLIED.

LEGAL DESCRIPTION

LAND DESCRIPTION : INSTRUMENT NUMBER 2013–027095
PART OF THE SOUTHEAST QUARTER OF SECTION 12 AND PART OR THE NORTHEAST QUARTER OF SECTION 13, ALL IN TOWNSHIP 12 NORTH, RANGE 4 EAST OF THE SECOND PRINCIPAL MERIDIAN IN THE CITY OF FRANKLIN, JOHNSON COUNTY, INDIANA, described as follows: BEGINNING at stone found at the Northeast corner of the Northeast Quarter of the Northeast Quarter of the said Section 13; Thence South 00 degrees 07 minutes 53 seconds East on and along the East line thereof 432.04 feet; Thence South 89 degrees 23 minutes 00 seconds West 476.12 feet to an iron rod found; Thence South 00 degrees 06 minutes 47 seconds East 1811.11 feet to an iron rod found; Thence North 87 degrees 11 minutes 04 seconds West 588.67 feet to an iron rod found; Thence North 86 degrees 14 minutes 12 seconds West 647.24 feet to an iron rod found at the East right–of–way line of Eastview Drive; Thence North 00 degrees 16 minutes 00 seconds East on and along the said East right–of–way line 438.05 feet to a right–of–way fence post; Thence North 01 degree 43 minutes 40 seconds East on and along the said right–of–way line 391.75 feet to an iron rod set; Thence Northwesterly on and along the said right–of–way line on a curve to the left which has a radius of 850.0 feet a curved distance of 646.40 feet, said arc being subtended by a chord bearing North 21 degrees 31 minutes 10 seconds West 630.94 feet to an iron rod set; Thence North 01 degree 40 minutes 58 seconds East on and along the said right–of–way line 181.00 feet to a P–K Nail set in the centerline of Upper Shelbyville Road; Thence Northeasterly on and along said centerline on a curve to the left which has a radius of 450.00 feet a curved distance of 40.32 feet said arc being subtended by a chord bearing North 46 degrees 12 minutes 19 second East 40.31 feet; Thence North 43 degree 3 minutes 17seconds East on and along the said centerline 482.28 feet to the beginning of a tangent curve; Thence Northeasterly on andalong the said centerline on a curve to the right which has a radius of 2136.39 feet a curved distance of 370.49 feet, said arc being subtended by a chord bearing North 48 degrees 36 minutes 22 seconds East 370.0 feet; Thence North 53 degrees 34 minutes 27 seconds EAst on and along the said centerline 343.77 feet to a P–K Nail set; Thence South 30 degrees 18 minutes 33 seconds East 200.00 feet; Thence North 53 degrees 34 minutes 27 seconds East 218.13 feet; Thence North 30 degrees 18 minutes 33 seconds West to a P–K Nail set in the centerline of Upper Shelbyville Road; Thence North 53 degrees 34 minutes 27 seconds East on and along the said centerline 453.20 feet to the beginning point of a tangent curve; Thence Northeasterly on and along the said centerline on a curve to the right which has a radius of 772.90 feet a curved distance of 323.41 feet, said arc being subtended by a chord bearing North 65 degrees 33 minutes 41 seconds East 321 05 feet; Thence North 77 degrees 32 minutes 55 seconds East on and along the said centerline 173.04 feet to a railroad spike found on the East line of the Southeast Quarter of the said Section 12; Thence South 00 degrees 00 minutes 14 seconds East on and along the East line 815.10 feet to the POINT OF BEGINNING, CONTAINING 81.4626 ACRES, MORE OR LESS, SUBJECT TO ALL LEGAL RIGHT–OF–WAY AND EASEMENTS.

MODERNIZED LEGAL DESCRIPTION:
A PART OF THE SOUTHEAST QUARTER OF SECTION 12, AND PART OF THE NORTHEAST QUARTER OF SECTION 13, ALL IN TOWNSHIP 12 NORTH, RANGE 4 EAST OF THE SECOND PRINCIPAL MERIDIAN, IN JOHNSON COUNTY, INDIANA, more particularly described as follows: Commencing at a stone found at the Northeast corner of the Northeast Quarter of the said Section 13; Thence South 00 degrees 07 minutes 53 seconds East on and along the East line thereof 432.04 feet; Thence South 89 degrees 23 minutes 00 seconds West 107.81 feet to an iron rod found at the POINT OF BEGINNING of this described tract; Thence continuing South 89 degrees 23 minutes 00 seconds West 368.31; Thence South 00 degrees 06 minutes 47 seconds East 1811.11 feet to an iron rod found; Thence North 87 degrees 11 minutes 04 seconds West 588.67 feet to an iron rod found; Thence North 86 degrees 14 minutes 12 seconds West 647.24 feet to an iron rod found at the East right–of–way of Eastview Drive; Thence North 00 degrees 16 minutes 00 seconds East on and along the said East right–of–way line 438.05 feet to a right–of–way fence post; Thence North 01 degrees 43 minutes 40 seconds East on and along the said right–of–way line 391.75 feet to an iron rod set; Thence Northwesterly on and along the said right–of–way on a curve to the left which has a radius of 850.00 feet a curved distance of 646.40 feet, said curve being subtended by a chord bearing and distance of North 21 degrees 31 minutes 10 seconds West 630.94 feet to an iron rod set; Thence North 01 degrees 40 minutes 58 seconds East on and along the said right–of–way line 181.00 feet to a "P–K" Nail found in the centerline of Upper Shelbyville Road; Thence Northeasterly on and along the said centerline on a curve to the left which has a radius of 450.00 feet a curved distance of 40.32 feet, said arc being subtended bya chord bearing and distance of North 46 degrees 12 minutes 19 seconds East 40.31 feet; Thence North 43 degrees 38 minutes 17 seconds East on and along the said centerline 482.28 feet; Thence Northeasterly on and along the said centerline on a curve to the right which has a radius of 2136.39 feet and curve distance of 370.48 feet, said curve being subtended by a chord bearing and distance of North 48 degrees 36 minutes 22 seconds East 370.02 feet; Thence North 53 degrees 34 minutes 27 seconds East on and along the said centerline 1015.10 feet; Thence Northeasterly on and along said centerline on a curve to the right which has a radius of 772.90 feet a curve distance of 323.40 feet, said curve being subtended by a chord bearing and distance of North 65 degrees 33 minutes 41 seconds East 321.05 feet; Thence North 77 degrees 32 minutes 55 seconds East on and along the said centerline 63.16 feet; Thence South 00 degrees 04 minutes 54 seconds West 791.25; Thence South 00 degrees 13 minutes 11 seconds East 433.11 feet to the POINT OF BEGINNING, CONTAINING 79.40 ACRES, MORE OR LESS.

CONTAINING 79.40 ACRES, MORE OR LESS, AND BEING SUBJECT TO ALL LEGAL EASEMENTS, RIGHTS OF WAY OR RESTRICTIONS OF RECORD OR OBSERVABLE.

ALSO;

BEING PART THE NORTHEAST QUARTER OF SECTION 13, ALL IN TOWNSHIP 12 NORTH, RANGE 4 EAST OF THE SECOND PRINCIPAL MERIDIAN, IN JOHNSON COUNTY, INDIANA, MORE PARTICULARLY DESCRIBED AS FOLLOWS: Commencing at a stone found at the Northeast corner of the Northeast Quarter of the said Section 13; Thence South 00 degrees 07 minutes 53 seconds East on and along the east line thereof 432.04 feet; Thence South 89 degrees 23 minutes 00 seconds West 107.81 feet to an iron rod found at the Southeast corner of a tract of land owned by Franklin Community School as shown on an A.L.T.A./A.C.S.M. Survey prepared by CKW Land Surveying, Inc. performed by Jeffery Kondy, Indiana Land Surveyor No. LS20100068 and dated June 7, 2013; Thence continuing South 89 degrees 23 minutes 00 seconds West, 295.42 feet to the PLACE OF BEGINNING; Thence South 21 degrees 46 minutes 25 seconds West, 195.52 feet to a place on a East line of said lands; Thence North 00 degree 06 minutes 47 seconds West, along a East line of said lands, 180.78 feet to a corner of said lands; Thence North 89 degrees 23 minutes 00 seconds East, along a South line of said lands, 72.89 feet to the PLACE OF BEGINNING.

CONTAINING 0.151 ACRES OR (6588 SQUARE FEET), MORE OR LESS, AND BEING SUBJECT TO ALL LEGAL EASEMENTS, RIGHTS OF WAY OR RESTRICTIONS OF RECORD OR OBSERVABLE.

GREGORY J. ILKO
REGISTERED
NO. 10300059
STATE OF INDIANA
PROFESSIONAL ENGINEER

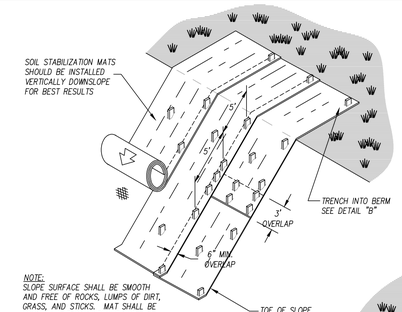
CROSSROAD ENGINEERS, PC
Transportation & Development Consultants

EROSION CONTROL DETAILS
HOMESTEADS AT HILLVIEW - SECTION 2

JOB No. .
DATE JULY 17, 2014
DRAWN LMC
DESIGNED WFH
CHECKED TEN
APPR. GJI

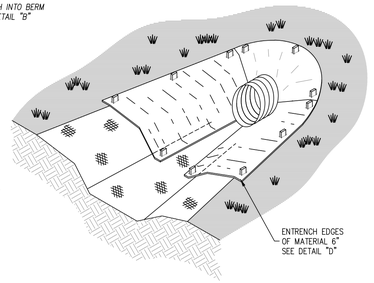
REVISIONS
NO. DATE BY APPR.

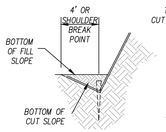
SHEET 902



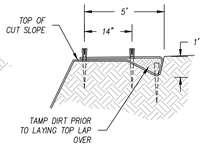
NOTE:
SLOPE SURFACE SHALL BE SMOOTH AND FREE OF ROCKS, LUMPS OF DIRT, GRASS, AND STICKS. MAT SHALL BE PLACED FLAT ON SURFACE FOR PROPER SOIL CONTACT.

FILL SLOPE SECTION



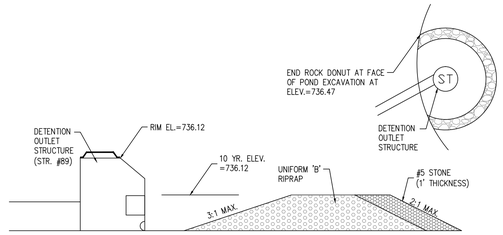


DETAIL "A"

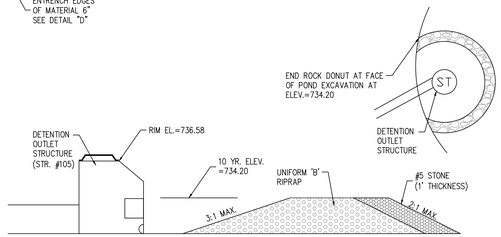


DETAIL "B"

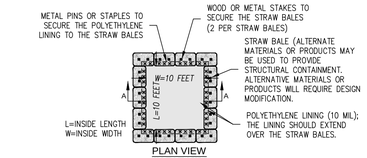
EROSION CONTROL BLANKET SLOPE INSTALLATION
NOT TO SCALE



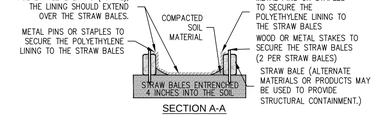
ROCK DONUT OUTLET PROTECTION DETAIL POND #3 (E)
NOT TO SCALE



ROCK DONUT OUTLET PROTECTION DETAIL POND #2 (E)
NOT TO SCALE

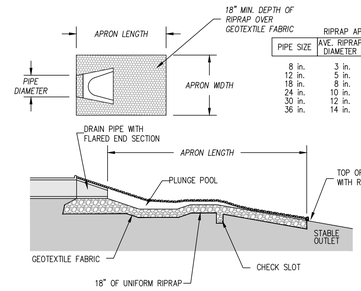


PLAN VIEW
NOT TO SCALE



SECTION A-A
NOT TO SCALE

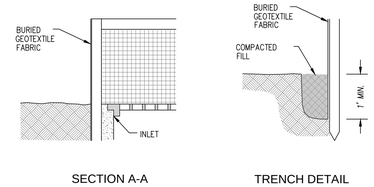
CONCRETE WASHOUT DETAIL (B)
NOT TO SCALE



RIPRAP APRON SIZING

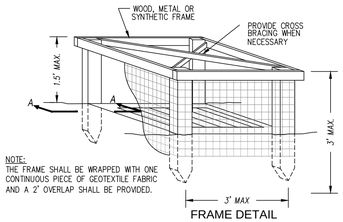
PIPE SIZE	AVE. RIPRAP DIAMETER	APRON WIDTH	APRON LENGTH
8 in.	3 in.	2–3 ft.	5–7 ft.
12 in.	5 in.	3–4 ft.	6–12 ft.
18 in.	8 in.	4–6 ft.	8–18 ft.
24 in.	10 in.	6–8 ft.	12–22 ft.
30 in.	12 in.	8–10 ft.	14–28 ft.
36 in.	14 in.	10–12 ft.	16–32 ft.

END SECTION AND RIPRAP DETAILS
NOT TO SCALE



SECTION A-A

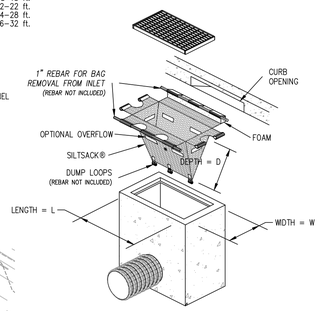
TRENCH DETAIL



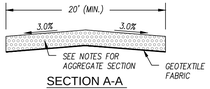
NOTE:
THE FRAME SHALL BE WRAPPED WITH ONE CONTINUOUS PIECE OF GEOTEXTILE FABRIC AND A 2' OVERLAP SHALL BE PROVIDED.

FRAME DETAIL

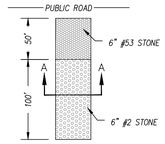
FABRIC DROP INLET PROTECTION DETAIL (C)
NOT TO SCALE



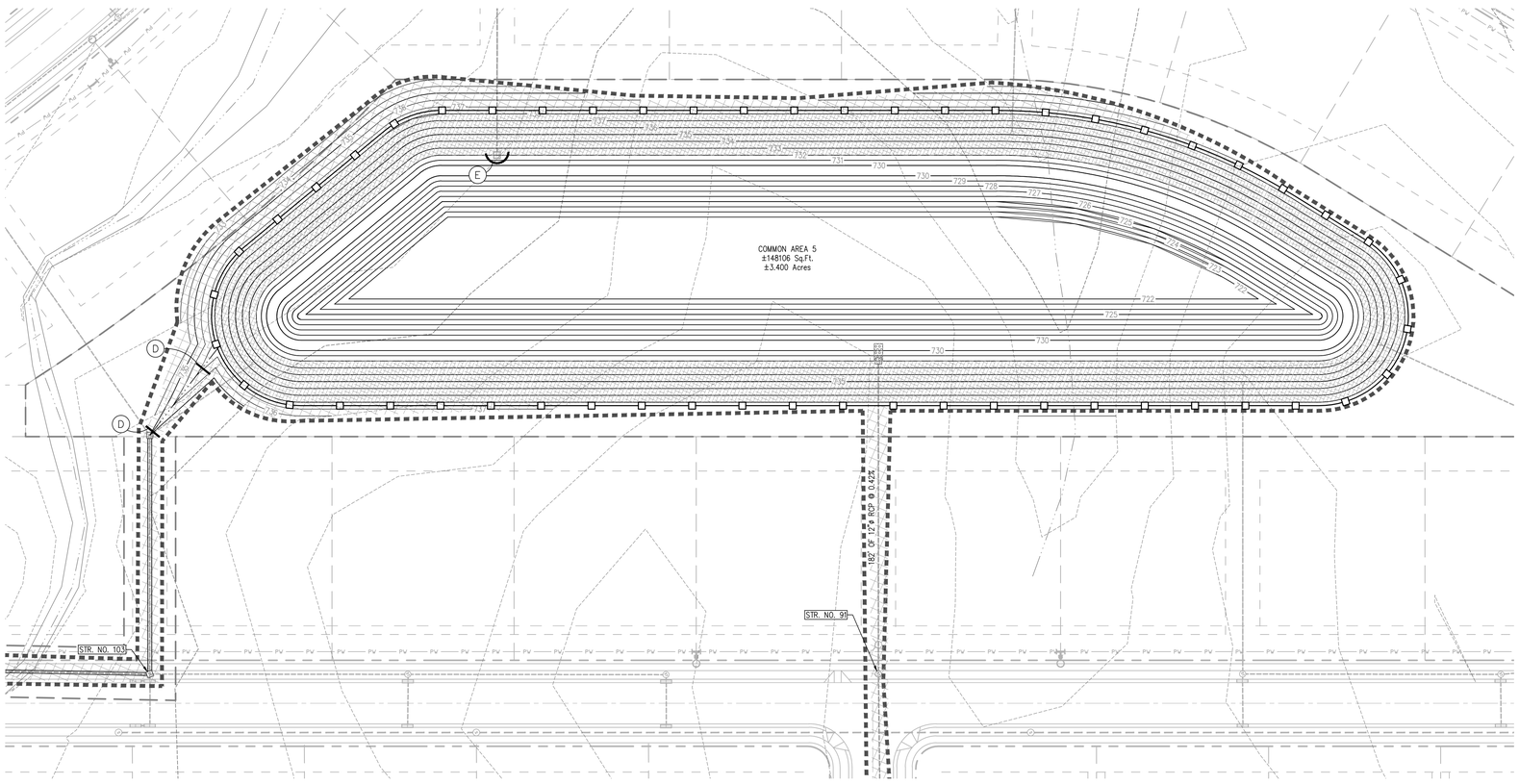
SILTSACK INLET FILTER DETAIL (A)
NOT TO SCALE

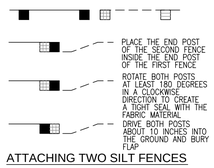


SECTION A-A

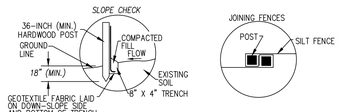


TEMPORARY CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE

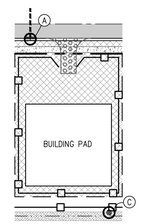




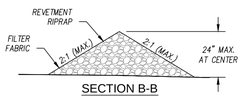
ATTACHING TWO SILT FENCES



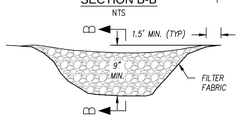
SILT FENCE DETAIL
NOT TO SCALE



LOT TEMPLATE DETAIL
NOT TO SCALE



SECTION B-B
NTS



ROCK CHECK DAM DETAIL (D)
NOT TO SCALE

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
317 SEMINARY ST. BLOOMINGTON, IN 46401 (812) 336-6536

SHEET 903

EROSION CONTROL DETAILS

HOMESTEADS AT HILLVIEW - SECTION 2

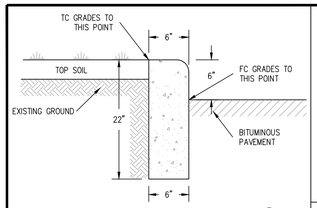
JOB No.	.	DRAWN	LMC	CHECKED	TEN	APPR.	GJI
DATE	JULY 17, 2014	DESIGNED	WFH				

GREGORY J. ILKO REGISTERED NO. 10300059 STATE OF INDIANA PROFESSIONAL ENGINEER

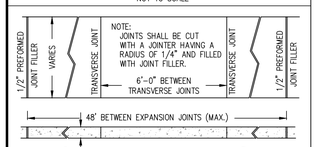
NO.	DATE	REVISIONS	BY	APPR.
1				
2				
3				
4				
5				
6				
7				
8				
9				

SHEET 903

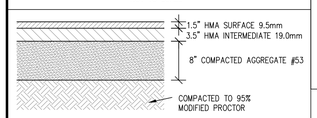
DIRECTORY PATH : R:\Active Jobs\Greenwe\Hillview CC Property\CAD\PHASE 2 - PLANS
FILENAME : 900 EROSION CONTROL PLAN.dwg
DATE/USER : 7/17/2014 1:59 PM / Lcox



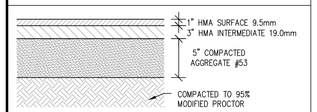
STRAIGHT CONCRETE CURB (C)
NOT TO SCALE



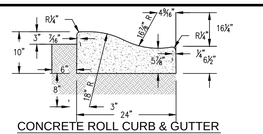
CONCRETE SIDEWALK (D)
NOT TO SCALE



TYPICAL ASPHALT PAVEMENT SECTION (K)
NOT TO SCALE

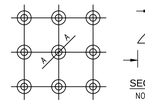


ASPHALT PATH SECTION (K1)
NOT TO SCALE

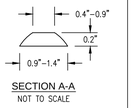


CONCRETE ROLL CURB & GUTTER
NOT TO SCALE

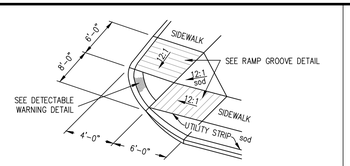
NOTES:
1) TRANSVERSE JOINTS SHALL BE CUT WITH A JOINTER HAVING A RADIUS OF 1/4" AT SPACING AS INDICATED OR DIRECTED.
2) WHERE SIDEWALK IS NOT CONSTRUCTED ADJACENT TO THE CURB, THE SPACE BEHIND THE CURB SHALL BE FILLED WITH SUITABLE MATERIAL TO THE REQUIRED ELEVATION AND COMPACTED IN LAYERS NOT TO EXCEED 4".



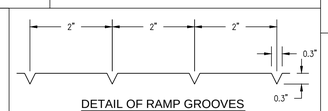
TRUNCATED DOMES USED IN DETECTABLE WARNINGS
NOT TO SCALE



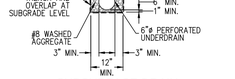
SECTION A-A
NOT TO SCALE



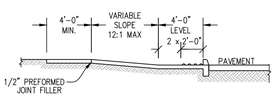
HANDICAP RAMP TYPE 'G' (F)
NOT TO SCALE



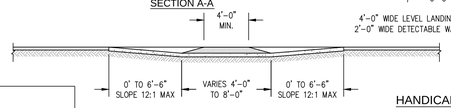
DETAIL OF RAMP GROOVES
NOT TO SCALE



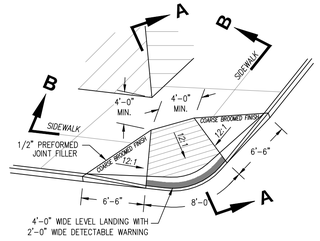
SUBSURFACE DRAIN
NOT TO SCALE



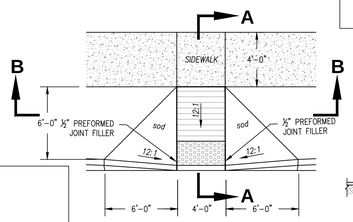
SECTION A-A
NOT TO SCALE



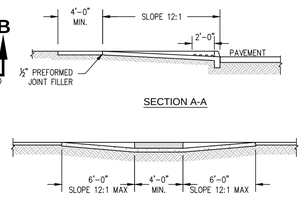
SECTION B-B
NOT TO SCALE



HANDICAP RAMP TYPE B (F1)
NOT TO SCALE



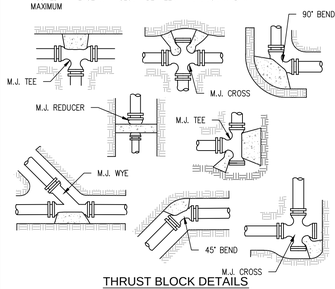
HANDICAP RAMP TYPE C (F2)
NOT TO SCALE



SECTION A-A
SECTION B-B

NOTE: CLASS 150 PIPE, TEST PRESSURE P.S.I.; SOIL BEARING: 2000 P.S.I. THRUST BLOCK CONTACT AREA OF UNDISTURBED EARTH BANK IN SQUARE FEET.

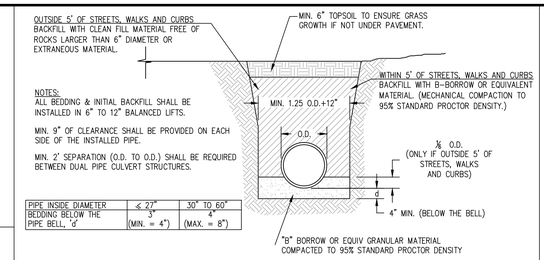
CONCRETE THRUST BLOCKS TO BE 2500 P.S.I. CONCRETE, POURED IN PLACE WITH SLUMP BETWEEN 1" MINIMUM AND 4" MAXIMUM



THRUST BLOCK DETAILS
NOT TO SCALE

THRUST BLOCK SCHEDULE

PIPE SIZE	ELBOWS 90°	45°	22½°	11¼°	TEE	VALVES & HYDRANT	REDUCER
16"	37.8	19.1	11.2	3.0	28.6	21.4	16 X 14 3.6
14"	29.8	14.9	8.9	2.3	23.2	16.4	14 X 12 3.1
12"	21.1	8.6	6.6	1.7	16.6	10.5	12 X 10 2.6
10"	11.5	5.9	3.6	1.2	9.4	7.8	10 X 8 2.1
8"	7.2	3.7	2.1	1.2	5.4	4.6	8 X 6 1.6
6"	3.2	3.0	1.3	1.2	3.5	2.6	6 X 4 1.6
4" & UNDER	1.3	3.0	1.3	1.2	3.5	1.3	4 X 3 1.6



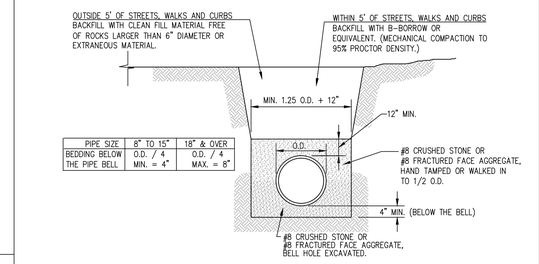
NOTES:
ALL BEDDING & INITIAL BACKFILL SHALL BE INSTALLED IN 6" TO 12" BALANCED LIFTS.

MIN. 9" OF CLEARANCE SHALL BE PROVIDED ON EACH SIDE OF THE INSTALLED PIPE.

MIN. 2' SEPARATION (O.D. TO O.D.) SHALL BE REQUIRED BETWEEN DUAL PIPE CULVERT STRUCTURES.

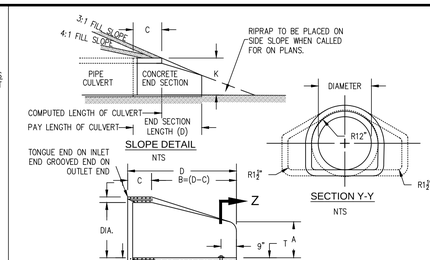
PIPE INSIDE DIAMETER	≤ 27"	30" TO 60"
BEDDING BELOW THE PIPE BELL, 'd'	3" (MIN. = 4")	4" (MAX. = 8")

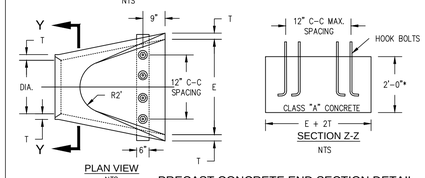
RIGID PIPE BEDDING DETAIL
RCP AND VCP PIPE
NOT TO SCALE



PIPE SIZE	8" TO 15"	18" & OVER
BEDDING BELOW THE PIPE BELL	O.D. / 4 MIN. = 4"	O.D. / 4 MAX. = 8"

FLEXIBLE PIPE BEDDING DETAIL
PVC AND HDPE PIPE
NOT TO SCALE



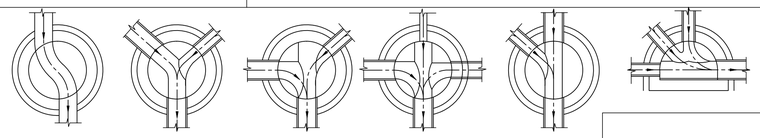


PRECAST CONCRETE END SECTION DETAIL

PRECAST CONCRETE END SECTION TABLE

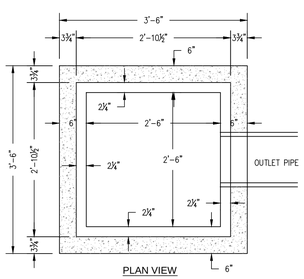
DIA.	WALL	C OR T	WT. SEC.	A	B	C	D	E	DIA.+1	R-1	SKIRT
12	2	1 1/2	530	4	24	48 7/8	72 7/8	24	13	10 1/16	3 1/2
15	2 1/4	2	740	6	27	46	73	30	16	12 1/2	3 1/2
18	2 1/2	2 1/2	990	9	27	46	73	36	19	15 1/2	4
21	2 1/4	2 1/4	1280	9	35	38	73	42	22	16 1/8	4
24	2 1/2	2 1/2	1520	9 1/2	43 1/2	30	73 1/2	48	25	18 11/16	4 1/2
27	2 1/2	2 1/2	1930	10 1/2	48	25 1/2	73 1/2	54	28	17 3/4	4 1/2
30	3	3	2190	12	54	19 3/4	73 3/4	60	31	18 5/16	5
33	3 3/8	3 3/8	3150	13 1/2	58 1/2	39 1/4	97 3/4	66	34	23 3/4	5 1/2
36	3 1/2	3 1/2	4100	15	63	34 3/4	97 3/4	72	37	24 1/16	5 1/2
42	3 3/4	3 3/4	5380	21	63	35	98	78	43	27 1/4	5 1/2
46	4 1/4	4 1/4	6550	24	72	26	98	84	49	28 1/8	5 3/4
54	4 3/4	4 3/4	8040	27	65	35	100	90	55	32 7/8	6 1/4
60	5	5	8750	30	60	39	99	96	61	36 3/4	6 3/4
66	5 1/2	5 1/2	10630	24	78	21	99	102	67	35 11/16	7 1/4
72	6	6	12520	34	78	21	99	108	73	38 5/8	7 3/4
78	6 1/2	6 1/2	14430	24	78	21	99	114	79	41 15/16	8 1/2
84	7	7	16350	24	78	21	99	120	85	44 13/16	9

NOTES:
1. MANUFACTURE OF END SECTION IS IN ACCORDANCE WITH APPLICABLE PORTIONS OF A.S.T.M. SPECIFICATION C76.

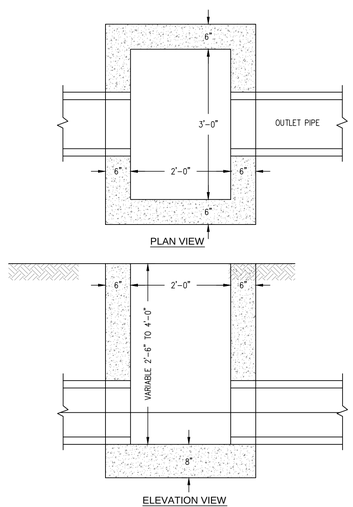


SANITARY SEWER BENCH SLOPE = 1/2" PER FOOT

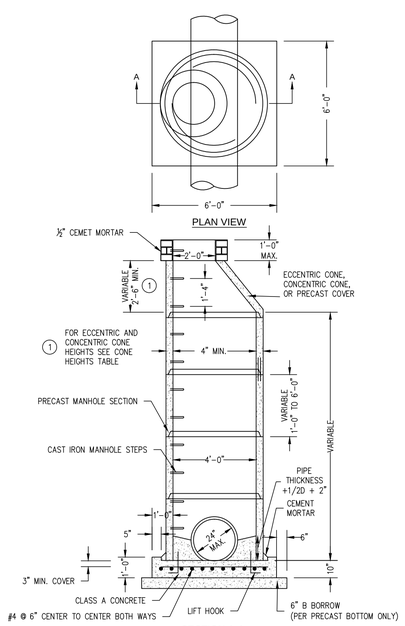
STANDARD MANHOLE BENCHES
NOT TO SCALE



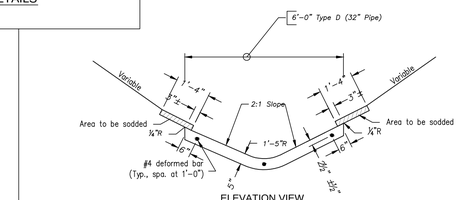
ELEVATION VIEW
INLET TYPE 'E'
NOT TO SCALE



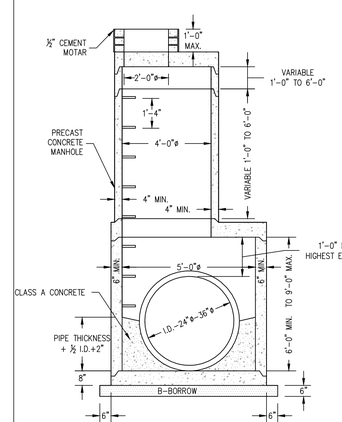
INLET TYPE 'J' & 'M'
NOT TO SCALE



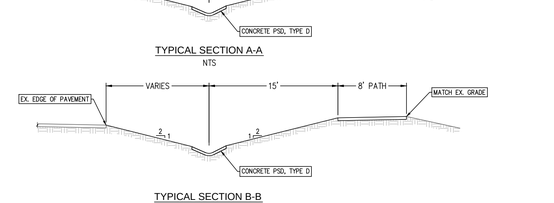
STORM MANHOLE TYPE 'C'
NOT TO SCALE

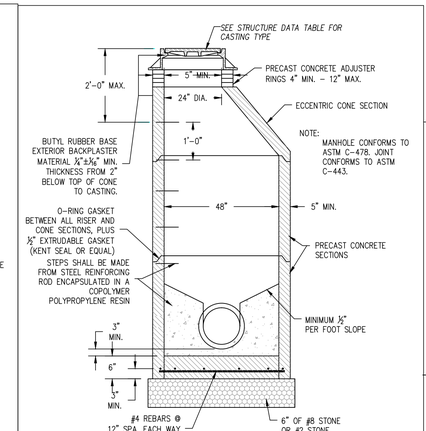


ELEVATION VIEW
PAVED SIDE DITCH TYPE D
NTS

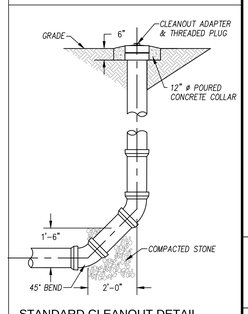


STORM MANHOLE TYPE 'J'
NOT TO SCALE





STANDARD SANITARY MANHOLE
NOT TO SCALE



STANDARD CLEANOUT DETAIL
NOT TO SCALE

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
247 STRYKER St. • BOX 290M, PA 18337 • (717) 760-1555

SHEET 1000

MISCELLANEOUS DETAILS

HOMESTEADS AT HILLVIEW - SECTION 2

JOB No.	.	CHECKED	TEN
DATE	JULY 17, 2014	DRAWN	LMC
		DESIGNED	MFH
		APPR.	GJI

GREGORY J. ILKO REGISTERED PROFESSIONAL ENGINEER NO. 103000059 STATE OF PENNSYLVANIA

NO.	DATE	REVISIONS	BY	APPR.
1				
2				
3				
4				
5				
6				
7				
8				
9				

SHEET 1000

DIRECTORY PATH : R:\Active\John Grimmer\Hilltop CC Property\CAD\PHASE 2 - PLANS
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EARTHWORK

1. SCOPE OF WORK

A. EXTENT: THE WORK REQUIRED UNDER THIS SECTION CONSISTS OF ALL EXCAVATING, FILLING, ROUGH GRADING AND RELATED ITEMS NECESSARY TO COMPLETE THE WORK INDICATED ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS. THE CONTRACTOR SHALL NOTIFY IN WRITING THE OWNER AND THE ENGINEER OF ANY CHANGES, ERRORS OR OMISSIONS FOUND ON THE PLANS OR IN THE FIELD, BEFORE WORK IS STARTED OR RESUMED.

1. IN GENERAL, THE ITEMS OF WORK TO BE PERFORMED UNDER THIS SECTION SHALL INCLUDE CLEARING AND GRUBBING, REMOVAL OF TREES AND STUMPS, STRIPPING AND STORAGE OF TOPSOIL, FILL COMPACTION AND ROUGH GRADING OF ENTIRE SITE. ALL TREES SHALL BE REMOVED UNLESS OTHERWISE NOTED IN PLANS OR DIRECTED BY OWNER.
2. EXCAVATED MATERIAL THAT IS SUITABLE MAY BE USED FOR FILLS. ALL UNSUITABLE MATERIAL AND ALL SURPLUS EXCAVATED MATERIAL NOT REQUIRED SHALL BE REMOVED FROM THE SITE. THE LOCATION OF DUMP AND LENGTH OF HAUL SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
3. PROVIDE AND PLACE ANY ADDITIONAL FILL MATERIAL FROM OFF THE SITE AS MAY BE NECESSARY TO PRODUCE THE GRADES REQUIRED. FILL OBTAINED FROM OFF SITE SHALL BE OF KIND AND QUALITY AS SPECIFIED FOR FILLS HEREIN AND THE SOURCE APPROVED BY THE OWNER.
4. THE CONTRACTOR SHALL ACCEPT THE SITE AS HE FINDS IT AND SHALL REMOVE ALL TRASH, RUBBISH AND DEBRIS FROM THE SITE PRIOR TO STARTING EXCAVATION

2. BENCHMARK

A. MAINTAIN CAREFULLY ALL BENCH MARKS, MONUMENTS AND OTHER REFERENCE POINTS; IF DISTURBED OR DESTROYED, CONTRACTOR SHALL CONTACT ENGINEER.

3. REMOVAL OF TREES

A. THE INTEGRITY OF THE TOPOGRAPHIC FEATURES (INCLUDING TREES) SHALL BE PERSEVERED AS MUCH AS POSSIBLE THE CONTRACTOR SHALL COORDINATE WITH OWNER AND/OR ENGINEER PRIOR TO CLEARING THE SITE FOR CONSTRUCTION.

B. ALL BRUSH, STUMPS, WOOD AND OTHER REFUSE FROM THE TREES REMOVED SHALL BE HAULED TO DISPOSAL AREAS OFF OF THE SITE. DISPOSAL BY BURNING SHALL NOT BE PERMITTED UNLESS PROPER PERMITS ARE OBTAINED (WHERE APPLICABLE).

4. HANDLING OF TOPSOIL

A. REMOVE ALL ORGANIC MATERIAL FROM THE AREAS TO BE OCCUPIED BY BUILDINGS, ROADS, WALKS AND PARKING AREAS. PILE AND STORE TOPSOIL AT A LOCATION WHERE IT WILL NOT INTERFERE WITH CONSTRUCTION OPERATIONS. TOPSOIL SHALL BE REASONABLE FREE FROM SUBSOIL, DEBRIS, WEEDS, GRASS, STONES, ETC.

B. AFTER COMPLETION OF SITE GRADING AND SUBSURFACE UTILITY INSTALLATION, TOPSOIL SHALL BE REPLACED IN AREAS DESIGNATED ON THE EROSION CONTROL PLAN FOR SEEDING AND/OR SODDING. ANY REMAINING TOPSOIL SHALL BE USED FOR FINISHED GRADING AROUND STRUCTURES AND LANDSCAPING AREAS.

5. DISPOSITION OF UTILITIES

A. RULES AND REGULATIONS GOVERNING THE RESPECTIVE UTILITIES SHALL BE OBSERVED IN EXECUTING ALL WORK UNDER THIS SECTION.

B. IF ACTIVE UTILITIES ARE ENCOUNTERED BUT NOT SHOWN ON THE DRAWINGS, THE ENGINEER SHALL BE ADVISED BEFORE WORK IS CONTINUED.

C. INACTIVE AND ABANDONED UTILITIES ENCOUNTERED IN EXCAVATING AND GRADING OPERATIONS SHALL BE REPORTED TO THE ENGINEER. THEY SHALL BE REMOVED, PLUGGED OR CAPPED AS DIRECTED BY THE UTILITY COMPANY OR THE ENGINEER.

D. IT SHALL BE THE RESPONSIBILITY OF EACH CONTRACTOR TO VERITY ALL EXISTING UTILITIES AND CONDITIONS PERTAINING TO HIS PHASE OF THE WORK. IT SHALL ALSO BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNERS OF THE VARIOUS UTILITIES BEFORE WORK IS STARTED.

6. SITE GRADING

A. GRADES: CONTRACTOR SHALL PERFORM ALL CUTTING, FILLING, COMPACTING OF FILLS AND ROUGH GRADING REQUIRED TO BRING ENTIRE PROJECT AREA TO GRADE AS SHOWN ON THE DRAWINGS.

B. ROUGH GRADING: THE TOLERANCE FOR PAVED AREAS SHALL NOT EXCEED 0.10 FEET PLUS OR MINUS ABOVE THE ESTABLISHED SUBGRADE. ALL OTHER AREAS SHALL NOT EXCEED 0.10 FEET PLUS OR MINUS THE ESTABLISHED GRADE. ALL BANKS AND OTHER BREAKS IN GRADE SHALL BE ROUNDED AT THE TOP AND BOTTOM.

C. COMPACTION REQUIREMENTS:

1. ALL BUILDING PAD AREAS SHALL BE COMPACTED TO STANDARDS SPECIFIED BY LOCAL AND/OR STATE BUILDING CODES.
2. COMPACTION REQUIREMENTS OF PAVED AREAS SHALL BE 95% OF MAXIMUM DRY DENSITY.

7. EARTH WORK BALANCE

A. THE CONTRACTOR SHALL CONFIRM ALL EARTHWORK QUANTITIES PRIOR TO START OF CONSTRUCTION. IF AN EXCESS OR SHORTAGE OF EARTH IS ENCOUNTERED, THE CONTRACTOR SHALL CONFIRM WITH THE OWNER AND ENGINEER THE REQUIREMENTS FOR STOCKPILING, REMOVAL OR IMPORTING OF EARTH.

MINOR ADJUSTMENTS TO THE GRADES MAY BE REQUIRED TO EARTHWORK BALANCES WHEN MINOR EXCESS MATERIAL OR SHORTAGES ARE ENCOUNTERED. IT IS RECOGNIZED BY THE PARTIES HERETO THAT THE CALCULATIONS OF THE ENGINEER IN ACCORDANCE WITH THE AMERICAN SOCIETY OF CIVIL ENGINEERS STANDARDS FOR SUCH CALCULATIONS. FURTHER, THAT THESE CALCULATIONS ARE SUBJECT TO THE INTERPRETATIONS OF SOIL BORINGS AS THE PHYSICAL LIMITS IN FINISH GRADE AND COMPACTION PERMITTED THE CONTRACTOR, AND THAT ALL OF THESE PARAMETERS MAY CAUSE EITHER AN EXCESS OR SHORTAGE OF ACTUAL EARTHWORK MATERIALS TO COMPLETE THE PROJECT. IF SUCH AN ACTUAL MINOR EXCESS OR SHORTAGE OF ACTUAL EARTHWORK MATERIALS OCCURS, THE CONTRACTOR SHALL CONTACT THE ENGINEER TO DETERMINE IF ADJUSTMENTS CAN BE MADE TO CORRECT THE IMBALANCE OF EARTH.

STREETS

1. SCOPE OF WORK

A. THE WORK REQUIRED UNDER THIS SECTION INCLUDES ALL CONCRETE AND BITUMINOUS PAVING AND RELATED ITEMS NECESSARY TO COMPLETE THE WORK INDICATED ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO:

1. ALL STREETS, PARKING AREAS WITHIN THE CONTRACT LIMITS.
2. CURBS AND CONCRETE RAMPS.
3. SIDEWALKS AND CONCRETE SLABS.
4. IN THE CASE OF ANY CONFLICTS WITH THESE SPECIFICATIONS AND LOCAL, STATE, FEDERAL SPECIFICATIONS THE MORE STRINGENT SHALL APPLY.

B. IN THE CASE OF ANY CONFLICTS WITH THESE SPECIFICATIONS AND LOCAL, STATE, FEDERAL SPECIFICATIONS THE MORE STRINGENT SHALL APPLY.

2. PAVEMENT CONSTRUCTION

A. ALL STREET CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS AND CONFORM TO THE MINIMUM STANDARDS OF THE CITY OF FRANKLIN AND ENGINEERING DEPARTMENTS, AND IF THERE ARE AREAS UNDEFINED USE THE CURRENT I.N.D.O.T. STANDARDS SPECIFICATIONS, AS REVISED.

B. FLEXIBLE PAVEMENT

1. MATERIALS

A. GENERAL: USE LOCALLY AVAILABLE MATERIALS AND GRADATIONS WHICH EXHIBIT A SATISFACTORY RECORD OF PREVIOUS INSTALLATIONS.

B. COMPACTED AGGREGATE BASE: SOUND, ANGULAR CRUSHED LIMESTONE, CRUSHED OR UNCRUSHED GRAVEL, OR CRUSHED OR PROCESSED AIR-COOLED BLAST FURNACE SLAG. COURSE AGGREGATE SHALL BE CLASS A, TYPE "O" AND CONFORM TO I.N.D.O.T. STANDARD SPECIFICATIONS SECTION 903.

C. BASE COURT AGGREGATE: SOUND, ANGULAR CRUSHED STONE, CRUSHED OR UNCRUSHED GRAVEL, OR CRUSHED SLAG, SAND, STONE, OR SLAG SCREENINGS. COARSE AGGREGATES SHALL BE CLASS A OR B AND CONFORM TO I.N.D.O.T. STANDARDS SPECIFICATIONS SECTION 903.

D. COARSE AGGREGATE FOR SURFACE AND BINDER MIXTURES: CRUSHED STONE, CRUSHED GRAVEL, CRUSHED SLAB, AND SHARP EDGED NATURAL SAND. SURFACE COARSE AGGREGATES SHALL BE CLASS A AND CONFORM TO I.N.D.O.T. STANDARD SPECIFICATIONS SECTION 903.

E. ASPHALT CEMENT: PETROLEUM ASPHALT CEMENT, AP 5 WITH PENETRATION OF 60-70 OR VISCOSITY GRADED ASPHALT CEMENT AC-20 CONFORMING TO I.N.D.O.T. STANDARD SPECIFICATIONS SECTION 903.

F. PRIME COAT: MEDIUM-CURE LIQUID ASPHALT OR ASPHALT EMULSION CONFORMING TO I.N.D.O.T. STANDARD SPECIFICATIONS SECTION 408.

G. TACK COAT: RAPID-CURE LIQUID ASPHALT OR ASPHALT EMULSION CONFORMING TO I.N.D.O.T. STANDARD SPECIFICATIONS SECTION 409.

H. LANE MARKING PAINT: CHLORINATED RUBBER-ALKYD TYPE, AASHTO M248 (FS TT-P-115), TYPE III.

3. ASPHALT-AGGREGATE MIXTURE

ALL BITUMINOUS MIXTURES ARE TO CONFORM TO CURRENT I.N.D.O.T. SPECIFICATIONS

A. SURFACE COURSE: HMA SURFACE 9.5mm

B. BINDER COURSE: HMA INTERMEDIATE 19.0mm

C. BASE COURSE: TYPE: HMA BASE 25.0mm

**PROVIDED A JOB MIX FORMULA FOR EACH TYPE OF ASPHALT PRIOR TO THE BEGINNING OF THE CONSTRUCTION PROJECT.

4. SURFACE PREPARATION

A. REMOVE LOOSE MATERIAL FROM COMPACTED SUBBASE SURFACE IMMEDIATELY BEFORE APPLYING PRIME COAT.

I) PROOF ROLL SUBGRADE SURFACE WITH LOADED TRI-AXLE TRUCK (48 HOUR NOTICE IS REQUIRED TO BE GIVEN TO THE CITY OF FRANKLIN ENGINEERING DEPT.) TO CHECK FOR UNSTABLE AREAS AND AREAS REQUIRING ADDITIONAL COMPACTION. IF PROOF ROLL EXCEEDS MAXIMUM ¼" DEFLECTION, CONTRACTOR SHALL COORDINATE WITH ENGINEER AND CITY OF FRANKLIN TO DETERMINE IF SUBGRADE STABILIZATION IS REQUIRED.

II) NOTIFY CONTRACTOR OF UNSATISFACTORY CONDITIONS. DO NOT BEGIN PAVING WORK UNTIL DEFICIENT SUBBASE AREAS HAVE BEEN CORRECTED AND ARE READY TO RECEIVE PAVING.

B. AGGREGATE BASE: AFTER PLACEMENT, PROOF ROLL COMPACTED AGGREGATE BASE SURFACE TO CHECK FOR UNSTABLE AREAS AND AREAS REQUIRING ADDITIONAL COMPACTION.

I) NOTIFY CONTRACTOR OF UNSATISFACTORY CONDITIONS. DO NOT BEGIN PAVING WORK UNTIL DEFICIENT AGGREGATE BASE AREAS HAVE BEEN CORRECTED AND ARE READY TO RECEIVE PAVING.

II) REMOVE LOOSE MATERIAL FROM COMPACTED AGGREGATE BASE SURFACE IMMEDIATELY BEFORE APPLYING PRIME COAT.

5. PLACING THE MIX

A. GENERAL: PLACE BITUMINOUS AGGREGATE MIXTURE ON PREPARED SURFACE, SPREAD AND STRIKE-OFF. SPREAD MIXTURE AT MINIMUM TEMPERATURE OF 225 DEGREES F.(107 DEGREES C). PLACE INACCESSIBLE AND SMALL AREAS BY HAND. PLACE EACH COURSE TO REQUIRED GRADE, CROSS-SECTION, AND COMPACTED THICKNESS.

B. BASE COURSE, COMPACTED AGGREGATE: SPREAD AND COMPACT IN TWO LIFTS AS FOLLOWS:

I) FIRST LIFT: NO. 53'S SHALL BE A MINIMUM OF 4" OR ½ THE TOTAL DEPTH OF AGGREGATE. EXTEND THE FIRS LIFT 4" OR A DISTANCE EQUAL TO THE DEPTH OF THE LIFT BEYOND THE SECOND LIFT.

II) SECOND LIFT: SIZE NO. 53

C. PRIME COAT: SUBBASE SURFACE SHALL BE PRIMED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF SECTION 408 OF I.N.D.O.T. STANDARD SPECIFICATIONS.

D. HOT ASPHALT CONCRETE BINDER COURSE: SPREAD AND ROLL TO MINIMUM FINISH DEPTHS INDICATED ON DETAILS.

E. TACK COAT: BINDER COURSE SHALL BE TACKED PRIOR TO THE INSTALLATION OF THE SURFACE COURSE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF SECTION 409 OF I.N.D.O.T. STANDARD SPECIFICATIONS.

F. SURFACE COURSE: SPREAD AND ROLL TO MINIMUM FINISH DEPTH INDICATED ON DETAILS. FINISH ELEVATION SHALL BE TRUE TO LINE AND GRADE WITHIN ½" OF TRUE ELEVATIONS.

G. PAVER PLACING: PLACE IN STRIPS NOT LESS THAN 10' WIDE, UNLESS OTHERWISE ACCEPTABLE TO ARCHITECT/ENGINEER. AFTER FIRST STRIP HAS BEEN PLACED AND ROLLED, PLACE SUCCEEDING STRIPS AND EXTEND ROLLING TO OVERLAP PREVIOUS STRIPS. COMPLETE BINDER COURSE FOR A SECTION BEFORE PLACING SURFACE COURSE.

H. JOINTS: MAKE JOINTS BETWEEN OLD AND NEW PAVEMENTS, OR BETWEEN PAVER PASSES, OR BETWEEN SUCCESSIVE DAYS WORK, TO ENSURE CONTINUOUS BOND BETWEEN ADJOINING WORK. CONSTRUCT JOINTS TO HAVE SAME TEXTURE, DENSITY AND SMOOTHNESS AS OTHER SECTIONS. CLEAN CONTACT SURFACES AND APPLY TACT COAT.

6. ROLLING

A. GENERAL: BEGIN ROLLING WHEN MIXTURE WILL BEAR ROLLER WEIGHT WITHOUT EXCESSIVE DISPLACEMENT.

I) COMPACT MIXTURE WITH HOT HAND TAMPERS OR VIBRATING PLATE COMPACTORS IN AREAS INACCESSIBLE TO ROLLERS.

B. BREAKDOWN ROLLING: ACCOMPLISH BREAKDOWN OR INITIAL ROLLING IMMEDIATELY FOLLOWING ROLLING OF JOINTS AND OUTSIDE EDGE. CHECK SURFACE AFTER BREAKDOWN ROLLING, AND REPAIR DISPLACED AREAS BY LOOSENING AND FILLING, IF REQUIRED, WITH HOT MATERIAL.

C. SECOND ROLLING: FOLLOW BREAKDOWN ROLLING AS SOON AS POSSIBLE, WHICH MIXTURE IS HOT. CONTINUE SECOND ROLLING UNTIL MIXTURE HAS BEEN THOROUGHLY COMPACTED.

D. FINISH ROLLING: PERFORM FINISH ROLLING WHILE MIXTURE IS STILL WARM ENOUGH FOR REMOVAL OF ROLLER MARKS. CONTINUE ROLLING UNTIL ROLLER MARKS ARE ELIMINATED AND COURSE HAS ATTAINED MAXIMUM DENSITY.

E. PATCHING: REMOVE AND REPLACE PAVING AREAS MIXED WITH FOREIGN MATERIALS AND DEFECTIVE AREAS. CUT OUT SUCH AREAS AND FILL WITH FRESH, HOT BITUMINOUS AGGREGATE MIX. COMPACT BY ROLLING TO MAXIMUM SURFACE DENSITY AND SMOOTHNESS.

F. PROTECTION: AFTER FINAL ROLLING, DO NOT PERMIT VEHICULAR TRAFFIC ON PAVEMENT UNTIL IT HAS COOLED AND HARDENED.

G. ERECT BARRICADES TO PROTECT PAVING FROM TRAFFIC UNTIL MIXTURE HAS COOLED ENOUGH NOT TO BECOME MARKED.

7. TRAFFIC AND LANE MARKINGS

A. CLEANING: SWEEP AND CLEAN SURFACE TO ELIMINATE LOOSE MATERIAL AND DUST.

B. STRIPPING: USE CHLORINATED RUBBER BASE TRAFFIC LANE-MARKING PAINT, FACTORY MIXED, QUICK-DRYING, AND NON-BLEEDING.

COLOR: YELLOW

I) DO NOT APPLY TRAFFIC AND LANE MARKING PAINT UNTIL LAYOUT AND PLACEMENT HAS BEEN VERIFIED WITH ARCHITECT/ENGINEER.

II) APPLY PAINT WITH MECHANICAL EQUIPMENT TO PRODUCE UNIFORM STRAIGHT EDGES. APPLY IN TWO COATS AT MANUFACTURER'S RECOMMENDED RATES.

8. FIELD QUALITY CONTROL

A. TESTING AND INSPECTION SERVICE:

I) OWNER SHALL EMPLOY A TESTING LABORATORY TO PERFORM PAVEMENT TESTING AND INSPECTION SERVICE FOR QUALITY CONTROL DURING PAVING OPERATIONS.

II) TESTING SERVICE SHALL HAVE REPRESENTATIVE PRESENT TO OBSERVE AND PERFORM TESTS AT ALL TIMES PAVING WORK IS IN PROGRESS.

B. GENERAL: TESTING SERVICE REPRESENTATIVE SHALL TAKE A MINIMUM OF TWO SAMPLES PER LIFT OF BITUMINOUS AGGREGATE MIX EACH DAY BEFORE PAVING OPERATION. LABORATORY TEST SHALL BE PERFORMED ON THESE SAMPLES TO DETERMINE AGGREGATE GRADATION AND ASPHALT CONTENT.

I) TEST IN-PLACE COMPACTED BITUMINOUS AGGREGATE MIX COURSES FOR COMPLIANCE WITH REQUIREMENTS FOR THICKNESS, DENSITY AND AIR VOIDS AND SURFACE SMOOTHNESS. REPAIR OR REMOVE AND REPLACE UNACCEPTABLE PAVING AS DIRECTED BY ENGINEER.

II) A TEST SECTION AT A MINIMUM SIZE OF 100'X12' SHALL BE PLACED AT A LOCATION AS DIRECTED BY THE COUNTY PRIOR TO FULL PRODUCTION FOR EACH TYPE OF MIX. THE TEST SECTION SHALL BE COMPACTED TO DETERMINE A TARGET DENSITY FOR THE REMAINDER OF THE PAVEMENT.

C. THICKNESS: IN-PLACE COMPACTED THICKNESS WILL NOT BE ACCEPTABLE IF EXCEEDING FOLLOWING ALLOWABLE VARIATION FROM REQUIRED THICKNESS:

AGGREGATE BASE COURSE: ½", PLUS OR MINUS
BASE COURSE: ½", PLUS OR MINUS
BINDER COURSE: ¼", PLUS OR MINUS
SURFACE COURSE: ¼", PLUS OR MINUS

I) A MINIMUM OF TWO PAVEMENT CORES PER COMPACTED LIFT SHALL BE TAKEN. CORES ARE TO BE TAKEN AT LOCATIONS AND AT TIMES OF DAY AS DIRECTED BY THE TESTING SERVICE. THE FOLLOWING TESTS SHALL BE PERFORMED BY THE TESTING SERVICE, ON EACH PAVEMENT CORE:

II) A TEST SECTION AT A MINIMUM SIZE OF 100'X12' SHALL BE PLACED AT A LOCATION AS DIRECTED BY THE COUNTY PRIOR TO FULL PRODUCTION FOR EACH TYPE OF MIX. THE TEST SECTION SHALL BE COMPACTED TO DETERMINE A TARGET DENSITY OF THE REMAINDER OF THE PAVEMENT.

D. PAVEMENT THICKNESS
DENSITY
AIR VOIDS

I) TESTING SERVICE SHALL SUBMIT CERTIFIED RESULTS TO THE OWNER AND ARCHITECT/ENGINEER WITHIN 72 HOURS AFTER TESTS ARE MADE, WITH THEIR COMMENTS AND RECOMMENDATIONS FOR ACTION.

II) PAVEMENT WHICH FAILS TO COMPLY WITH APPROVED JOB MIX FORMULA SHALL BE REPLACED AS DIRECTED BY THE ARCHITECT/ENGINEER.

E. SURFACE SMOOTHNESS: TEST FINISHED SURFACE FOR SMOOTHNESS, USING 10' STRAIGHTEDGE APPLIED PARALLEL WITH, AND AT RIGHT ANGLES TO CENTERLINE OF PAVED AREA. SURFACE WILL NOT BE ACCEPTABLE IF EXCEEDING THE FOLLOWING TOLERANCES FOR SMOOTHNESS.

AGGREGATE BASE COURSE SURFACE:1/4"
BASE COURSE SURFACE: 1/4"
BINDER COURSE SURFACE: 1/8"
WEARING COURSE SURFACE: 1/8"

I) CHECK SURFACED AREAS AT INTERVALS AS DIRECTED BY TESTING SERVICE.

F. DENSITY TESTS: DENSITY TESTS SHALL BE MADE AT EACH LIFT. TEST SHALL BE AS FOLLOWS:

I) TESTS WILL BE REQUIRED AT VARIOUS TIMES AND LOCATIONS FOR SUBGRADE AND BASE COURSES FOR ASPHALT PAVING AREAS.

G. TESTING SERVICE SHALL SUBMIT CERTIFIED RESULTS TO THE OWNER AND ENGINEER WITHIN 72 HOURS AFTER TESTS ARE MADE WITH THEIR COMMENTS AND RECOMMENDATIONS FOR ACTION.

I) SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH I.N.D.O.T. STANDARD SPECIFICATIONS, SECTION 207 AND SUBSECTION 501.07. NO TRAFFIC SHALL BE PERMITTED ON THE PREPARED SUBGRADE PRIOR TO PAVING.

II) SEE SITE GRADING, UNDER THE 'EARTHWORK' SECTION FOR ADDITIONAL COMPACTION REQUIREMENTS.

9. APPLICATION

A. GRADING: DO ANY NECESSARY GRADING IN ADDITION TO THAT PERFORMED IN ACCORDANCE WITH EARTHWORK SECTION TO BRING SUBGRADES, AFTER FINAL COMPACTION, TO THE REQUIRED GRADES AND SECTIONS FOR SITE IMPROVEMENTS.

B. PREPARATION OF SUBGRADE: REMOVE SPONGY AND OTHERWISE UNSUITABLE MATERIAL AND REPLACE WITH STABLE MATERIAL. NO TRAFFIC WILL BE ALLOWED ON PREPARED SUBGRADE PRIOR TO PAVING.

C. COMPACTION OF SUBGRADE: THE FIRST 6 INCHES BELOW THE SUBGRADE SHALL BE COMPACTED TO AT LEAST 100% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE PROVISIONS OF AASHO T-99. WATER SHALL BE PREVENTED FROM STANDING ON THE COMPACTED SUBGRADE.

D. UTILITY STRUCTURES: CHECK FOR CORRECT ELEVATION OF ALL MANHOLE COVERS, VALVE BOXES AND SIMILAR STRUCTURES LOCATED WITHIN AREAS TO BE PAVED, AND MAKE, OR HAVE MADE, ANY NECESSARY ADJUSTMENTS IN SUCH STRUCTURES.

E. PLACING CONCRETE

1. SUBGRADE: PLACE CONCRETE ONLY ON A MOIST, COMPACTED SUBGRADE OR BASE FREE FROM LOOSE MATERIAL. PLACE NO CONCRETE ON A MUDDY OR FROZEN SUBGRADE.
2. FORMS: ALL FORMS SHALL BE FREE FROM WARP, TIGHT ENOUGH TO PREVENT LEAKAGE AND SUBSTANTIAL ENOUGH TO MAINTAIN THEIR SHAPE AND POSITION WITHOUT SPRINGING OR SETTLING, WHEN CONCRETE IS PLACED. FORMS SHALL BE CLEAN AND SMOOTH IMMEDIATELY BEFORE CONCRETING.
3. PLACING CONCRETE: CONCRETE SHALL BE DEPOSITED SO AS TO REQUIRE AS LITTLE REHANDLING AS PRACTICABLE. WHEN CONCRETE IS TO BE PLACED AT AN ATMOSPHERIC TEMPERATURE OF 35 DEGREES F. OR LESS, PARAGRAPH 702.10 OF THE I.N.D.O.T. SPECIFICATIONS LATEST REVISIONS SHALL BE FOLLOWED.

F. CONCRETE CURB

1. EXPANSION JOINTS: SHALL BE 1/2 INCH THICK PREMOULDED AT ENDS OF ALL RETURNS AND AT A MAXIMUM SPACING OF 100 FEET.
2. CONTRACTION JOINTS UNLESS OTHERWISE PROVIDED, CONTRACTION JOINTS SHALL BE SAWED JOINTS SPACED 10 FEET ON CENTER.
3. FINISH: TAMP AND SCREED CONCRETE AS SOON AS PLACED, AND FILL ANY HONEY COMBED PLACES. FINISH SQUARE CORNERSTONE 1/4 INCH RADIUS AND OTHER CORNERS TO RADII SHOWN.

G. CONCRETE WALKS AND EXTERIOR STEPS

1. SLOPES: PROVIDE ¼ INCH PER FOOT CROSS SLOPE. MAKE ADJUSTMENTS ON SLOPES AT WALK INTERSECTIONS AS NECESSARY TO PROVIDE PROPER DRAINAGE.
2. DIMENSIONS: WALKS AND STEPS SHALL BE ONE COURSE CONSTRUCTION AND OF WIDTHS AND DETAILS SHOWN ON THE DRAWINGS.
3. FINISH: SCREED CONCRETE AND TROWEL WITH A STEEL TROWEL TO A HARD DENSE SURFACE AFTER SURFACE WATER HAS DISAPPEARED. APPLY MEDIUM BROOM FINISH AND SCRIBE TRANSVERSE JOINTS AT 6 FOOT SPACING. PROVIDE ½ INCH EXPANSION JOINTS WHERE SIDEWALKS INTERSECT, AND AT A MAXIMUM SPACING OF 48 FEET BETWEEN EXPANSION JOINTS.

H. CURING CONCRETE FOR WALKS AND CURBS: EXCEPT AS OTHERWISE SPECIFIED, CURE ALL CONCRETE BY ONE OF THE METHODS DESCRIBED IN SECTION 501.17 OF THE I.N.D.O.T. SPECIFICATIONS, LATEST REVISION.

I. BITUMINOUS PAVEMENT: HOT MIX ASPHALT PAVEMENT SHALL BE AS SPECIFIED IN SECTION 402 OF THE I.N.D.O.T. SPECIFICATIONS LATEST REVISIONS. PAVING WILL NOT BE PERMITTED DURING UNFAVORABLE WEATHER OR THEN THE TEMPERATURE IS 40 DEGREES F. AND FALLING.

J. COMPACTED AGGREGATE SUBBASE: THE THICKNESS SHOWN ON THE DRAWINGS IS THE MINIMUM THICKNESS OF THE FULL COMPACTED SUBBASE. COMPACTION SHALL BE ACCOMPLISHED BY ROLLING WITH A SMOOTH WHEELED ROLLER WEIGHING 8 TO 10 TONS. COMPACT TO 95% COMPACTION USING STANDARD TESTING PROCEDURES. ALONG CURBS, HEADERS AND WALLS AND AT ALL PLACES NOT ACCESSIBLE TO THE ROLLER, THE AGGREGATE MATERIAL SHALL BE TAMPED WITH MECHANICAL TAMPERS OR WITH APPROVED HAND TAMPERS.

K. CONCRETE RAMPS

1. CONCRETE RAMPS FOR THE DISABLED SHALL BE REQUIRED AS SPECIFIED IN THE PLANS AND SHALL CONFORM WITH CURRENT SPECIFICATIONS ESTABLISHED BY THE AMERICAN DISABILITIES ACT (ADA), SECTION 4.7, "CURB RAMPS."
2. THE CONCRETE RAMP SHALL BE FLUSH AND FREE OF ABRUPT CHANGES WITH SIDEWALKS, GUTTERS OR STREETS, AND PROVIDE A MAXIMUM SLOPE OF 1:12.
3. THE MINIMUM WIDTH OF A CONCRETE RAMP SHALL BE (48) INCHES EXCLUSIVE OF FLARED SIDES.
4. SIDES OF CONCRETE RAMPS SHALL HAVE FLARED SIDES AS SHOWN IN THE PLANS.

STORM SEWER SYSTEMS

1. SCOPE OF WORK

A. THE WORK UNDER THIS SECTION INCLUDES ALL STORM SEWERS, STORM WATER INLETS, AND RELATED ITEMS, INCLUDING EXCAVATING AND BACKFILLING NECESSARY TO COMPLETE THE WORK SHOWN ON THE DRAWINGS.

B. IN THE CASE OF ANY CONFLICTS WITH THESE SPECIFICATIONS AND LOCAL, STATE, FEDERAL SPECIFICATIONS THE MORE STRINGENT SHALL APPLY.

2. STORM SEWER CONSTRUCTION

A. STORM SEWERS

1. STORM SEWER STRUCTURES SHALL COMPLY WITH CURRENT SPECIFICATIONS OF THE CITY OF FRANKLIN PLANNING AND ALL OTHER RESPONSIBLE AGENCIES IN RESPECT TO DESIGN AND QUALITY OF CONSTRUCTION.
2. ALL STORM SEWER CONSTRUCTION INSIDE PUBLIC RIGHT-OF-WAY, EITHER EXISTING OR TO BE DEDICATED, SHALL BE IN ACCORDANCE WITH THE MOST CURRENT I.N.D.O.T. STANDARD SPECIFICATION.
3. WHERE REINFORCED CONCRETE PIPE IS SHOWN ON THE CONSTRUCTION PLANS, IT SHALL BE IN ACCORDANCE WITH A.S.T.M. C-76 CLASS III WALL "B" UNLESS OTHERWISE SPECIFIED ON THE PLANS.
4. WHERE CORRUGATED METAL PIPE IS SHOWN ON THE CONSTRUCTION PLANS, IT SHALL BE 14 GAUGE ALUMINIZED UNLESS OTHERWISE SPECIFIED AND SHALL HAVE THE CONNECTING BANDS AND SEALS AS SPECIFIED BY THE MANUFACTURER. C.M.P. SHALL BE ALUMINIZED PIPE IN ACCORDANCE WITH A.S.T.M. A-444.
5. MANHOLES, CATCH BASINS AND INLETS SHALL BE PRECAST CONCRETE. USE OF BRICK OR BLOCK WILL NOT BE PERMITTED UNLESS AUTHORIZED IN WRITING BY THE ENGINEER AND APPROVED IN WRITING BY THE CITY OF FRANKLIN PLANNING AND HIGHWAY DEPARTMENTS DRAINAGE PRIOR TO CONSTRUCTION.
   A. IF THE CONTRACTOR ELECTS TO USE ALTERNATE PRECAST STRUCTURES, HE SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER PRIOR TO ANY CONSTRUCTION.
6. PRECAST CONCRETE AND STEEL FOR MANHOLES AND INLETS SHALL BE IN ACCORDANCE WITH A.S.T.M. C-478.
7. CASTINGS SHALL BE AS SHOWN ON THE DETAIL SHEET(S) FOR MANUFACTURER, TYPE AND MODEL NUMBER.
8. NUMBER 53 STONE BACKFILL SHALL BE REQUIRED UNDER ALL PAVEMENT AREAS AND TRENCHES WITHIN FIVE(5) FEET OF THE EDGE OF PAVEMENT.
9. ALL TRENCHES UNDER PAVEMENT SHALL BE COMPACTED TO 95 PERCENT MODIFIED PROCTOR.

3. APPLICATION

A. PERMITS AND CODES: THE INTENT OF THIS SECTION OF THE SPECIFICATIONS IS THAT THE CONTRACTOR'S BID ON THE WORK COVERED HEREIN SHALL BE BASED UPON THE DRAWINGS AND SPECIFICATIONS BUT THAT THE WORK SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS AS AMENDED BY ANY WAIVERS. THE CONTRACTOR SHALL FURNISH ALL BONDS NECESSARY TO GET PERMITS FOR CUTS AND CONNECTIONS TO EXISTING SEWERS.

B. LOCAL STANDARDS: THE TERM "LOCAL STANDARDS" AS USED HEREIN MEANS THE STANDARDS OF DESIGN AND CONSTRUCTION OF THE RESPECTIVE MUNICIPAL DEPARTMENT OR UTILITY COMPANY.

C. EXISTING IMPROVEMENTS: THE CONTRACTOR SHALL MAINTAIN IN OPERATING CONDITION ALL ACTIVE UTILITIES, SEWERS AND OTHER DRAINS ENCOUNTERED IN THE SEWER INSTALLATION. THE CONTRACTOR SHALL REPAIR TO THE SATISFACTION OF THE OWNER ANY DAMAGE TO EXISTING ACTIVE IMPROVEMENTS.

D. WORKMANSHIP: THIS WORK SHALL CONFORM TO ALL LOCAL, STATE AND NATIONAL CODES AND TO BE APPROVED BY ALL LOCAL AND STATE AGENCIES HAVING JURISDICTION.

E. TRENCHING: LAY ALL PIPE IN OPEN TRENCHES, EXCEPT WHEN THE LOCAL AUTHORITY GIVES WRITTEN PERMISSION FOR TUNNELING. OPEN THE TRENCH SUFFICIENTLY AHEAD OF PIPE-LAYING TO REVEAL ANY OBSTRUCTIONS. THE MIN. WIDTH OF TRENCH SHALL BE 1.25 TIMES THE OUTSIDE DIA. OF PIPE. SHEET AND BRACE TRENCH AS NECESSARY TO PROTECT WORKMEN AND ADJACENT STRUCTURES. ALL TRENCHING TO COMPLY WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION STANDARDS. KEEP TRENCHES FREE FROM WATER WHILE CONSTRUCTION IS IN PROGRESS. UNDER NO CIRCUMSTANCES SHALL PIPE OR APPURTENANCES BE LAID IN STANDING WATER. CONDUCT THE DISCHARGE FROM TRENCH DE-WATERING TO DRAINS OR NATURAL DRAINAGE CHANNELS.

F. SPECIAL SUPPORTS: WHENEVER, IN THE OPINION OF THE ENGINEER, THE SOIL AT OR BELOW THE PIPE GRADE IS UNSUITABLE FOR SUPPORTING SEWERS AND APPURTENANCES SPECIFIED IN THIS SECTION, SUCH SPECIAL SUPPORT, IN ADDITION TO THOSE SHOWN OR SPECIFIED, SHALL BE PROVIDED AS THE ENGINEER MAY DIRECT, AND THE CONTRACT WILL BE ADJUSTED.

G. BACKFILLING: BACKFILL SHALL BE PLACED AS SHOWN IN THE PLANS. NOTE THAT PVC & HDPE PIPE SHALL BE COVERED WITH 12" MINIMUM OF #8 STONE. COMPACT THIS BACKFILL THOROUGHLY, TAKING CARE NOT TO DISTURB THE PIPE. BACKFILL UNDER AND WITHIN 5 FEET OF WALKS, PARKING AREAS, DRIVEWAYS AND STREETS SHALL BE "B" BORROW OR EQUIVALENT GRANULAR MATERIAL ONLY AND THOROUGHLY COMPACTED BY APPROVED METHODS.

H. MANHOLE INVERTS: CONSTRUCT MANHOLE FLOW CHANNELS OF CONCRETE SEWER PIPE OR BRICK, SMOOTHLY FINISHED AND OF SEMICIRCULAR SECTION CONFORMING TO THE INSIDE DIAMETER OF THE CONNECTING SEWERS. MAKE CHANGES IN SIZE OR GRADE GRADUALLY AND CHANGES INDIRECTION BY TRUE CURVES. PROVIDE SUCH CHANNELS FOR ALL CONNECTING SEWERS AT EACH MANHOLE.

I. SUBDRAINS: ALL SUBDRAINS SHALL BE OF THE SIZE SHOWN ON THE PLANS AND SHALL BE CONSTRUCTED TO THE GRADES SHOWN. ALL DRAINS CONSTRUCTED OFF-SITE AS PART OF THE OUTLET DRAIN WILL BE LOCATED AS SHOWN.

J. UTILITIES: IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERITY ALL EXISTING UTILITIES AND CONDITIONS PERTAINING TO HIS WORK. IT SHALL ALSO BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNERS OF THE VARIOUS UTILITIES BEFORE WORK IS STARTED. THE CONTRACTOR SHALL NOTIFY IN WRITING THE OWNER AND THE ENGINEER OF ANY CHANGES, ERRORS OR OMISSIONS FOUND ON THESE PLANS OR IN THE FIELD BEFORE WORK IS STARTED OR RESUMED.

WATER LINE SYSTEM

1. SCOPE OF WORK

A. THE WORK UNDER THIS SECTION INCLUDES ALL WATER MAIN, FIRE HYDRANTS, SERVICES AND RELATED ITEMS, INCLUDING EXCAVATING AND BACKFILLING NECESSARY TO COMPLETE THE WORK SHOWN ON THE DRAWINGS.

2. MATERIALS

A. ALL MATERIALS SHALL CONFORM TO ALL LOCAL, STATE, AND NATIONAL CODES AND SHALL BE APPROVED BY ALL LOCAL AND STATE AGENCIES HAVING JURISDICTION.

3. APPLICATION

A. PERMITS AND CODES: THE INTENT OF THIS SECTION OF THE SPECIFICATIONS IS THAT THE CONTRACTOR'S BID ON THE WORK COVERED HEREIN SHALL BE BASED UPON THE DRAWINGS AND SPECIFICATIONS BUT THAT THE WORK SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS AS AMENDED BY ANY WAIVERS. THE CONTRACTOR SHALL FURNISH ALL BONDS NECESSARY TO GET PERMITS FOR CUTS AND CONNECTIONS TO EXISTING WATER MAINS.

B. LOCAL STANDARDS: THE TERM "LOCAL STANDARDS" AS USED HEREIN MEANS THE STANDARDS OF DESIGN AND CONSTRUCTION OF THE RESPECTIVE MUNICIPAL DEPARTMENT OR UTILITY COMPANY.

C. EXISTING IMPROVEMENTS: THE CONTRACTOR SHALL MAINTAIN IN OPERATING CONDITION ALL ACTIVE UTILITIES, SEWERS AND OTHER DRAINS ENCOUNTERED IN THE WATER LINE INSTALLATION. THE CONTRACTOR SHALL REPAIR TO THE SATISFACTION OF THE OWNER ANY DAMAGE TO EXISTING ACTIVE IMPROVEMENTS.

D. WORKMANSHIP: THIS WORK SHALL CONFORM TO ALL LOCAL, STATE AND NATIONAL CODES AND TO BE APPROVED BY ALL LOCAL AND STATE AGENCIES HAVING JURISDICTION. THIS INCLUDES ALL REQUIRED CLEANING AND TESTING PROCEDURES REQUIRED BY THE STATE AND LOCAL AGENCIES.

E. TRENCHING: LAY ALL PIPE IN OPEN TRENCHES, EXCEPT WHEN THE LOCAL AUTHORITY GIVES WRITTEN PERMISSION FOR TUNNELING. OPEN THE TRENCH SUFFICIENTLY AHEAD OF PIPE-LAYING TO REVEAL ANY OBSTRUCTIONS. THE MIN. WIDTH OF TRENCH SHALL BE 1.25 TIMES THE OUTSIDE DIA. OF PIPE. SHEET AND BRACE TRENCH AS NECESSARY TO PROTECT WORKMEN AND ADJACENT STRUCTURES. ALL TRENCHING TO COMPLY WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION STANDARDS. KEEP TRENCHES FREE FROM WATER WHILE CONSTRUCTION IS IN PROGRESS. UNDER NO CIRCUMSTANCES SHALL PIPE OR APPURTENANCES BE LAID IN STANDING WATER. CONDUCT THE DISCHARGE FROM TRENCH DE-WATERING TO DRAINS OR NATURAL DRAINAGE CHANNELS.

F. SPECIAL SUPPORTS: WHENEVER, IN THE OPINION OF THE ENGINEER, THE SOIL AT OR BELOW THE PIPE GRADE IS UNSUITABLE FOR SUPPORTING PIPE AND APPURTENANCES SPECIFIED IN THIS SECTION, SUCH SPECIAL SUPPORT, IN ADDITION TO THOSE SHOWN OR SPECIFIED, SHALL BE PROVIDED AS THE ENGINEER MAY DIRECT, AND THE CONTRACT WILL BE ADJUSTED.

G. BACKFILLING: BACKFILL SHALL BE PLACED AS SHOWN IN THE PLANS. NOTE THAT PVC & HDPE PIPE SHALL BE COVERED WITH 12" MINIMUM OF #8 STONE. COMPACT THIS BACKFILL THOROUGHLY, TAKING CARE NOT TO DISTURB THE PIPE. BACKFILL UNDER AND WITHIN 5 FEET OF WALKS, PARKING AREAS, DRIVEWAYS AND STREETS SHALL BE "B" BORROW OR EQUIVALENT GRANULAR MATERIAL ONLY AND THOROUGHLY COMPACTED BY APPROVED METHODS.

H. UTILITIES: IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL EXISTING UTILITIES AND CONDITIONS PERTAINING TO HIS WORK. IT SHALL ALSO BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNERS OF THE VARIOUS UTILITIES BEFORE WORK IS STARTED. THE CONTRACTOR SHALL NOTIFY IN WRITING THE OWNER AND THE ENGINEER OF ANY CHANGES, ERRORS OR OMISSIONS FOUND ON THESE PLANS OR IN THE FIELD BEFORE WORK IS STARTED OR RESUMED.

SANITARY SEWER SYSTEMS

1. SCOPE OF WORK

A. THE WORK UNDER THIS SECTION INCLUDES ALL SANITARY SEWERS, MANHOLES, CLEANOUTS AND RELATED ITEMS INCLUDING EXCAVATING AND BACKFILLING, NECESSARY TO COMPLETE THE WORK SHOWN IN THE DRAWINGS, STARTING OUTSIDE THE BUILDING WALLS. THE END OF SEWERS SHALL BE TIGHTLY PLUGGED OR CAPPED AT THE TERMINAL POINTS, ADJACENT TO THE BUILDING DRAIN AS SPECIFIED IN THE PLUMBING SPECIFICATIONS AND/OR ARCHITECTURAL DRAWINGS.

2. MATERIALS

A. SANITARY SEWERS

1. ALL GRAVITY PLASTIC SEWER PIPE FITTINGS SHALL CONFORM TO ASTM D3034 WITH A CELL CLASSIFICATION OF 12454-B OR 12454-C. FLEXIBLE GASKETED COMPRESSION JOINTS SHALL BE USED FOR PVC & PVC TRUSS PIPE. NO SOLVENT CEMENT JOINTS SHALL BE ALLOWED.
2. ABS SEWER PIPE AND FITTINGS SHALL CONFORM TO ASTM D2680 LATEST REVISION.
3. TRACER WIRE SHALL BE INSTALLED WITH ALL NEW SANITARY PIPE.

B. MANHOLES

1. PRECAST REINFORCED CONCRETE MANHOLE SECTIONS AND STEPS SHALL CONFORM TO ASTM C-478 LATEST REVISION. EXTERIOR OF THE MANHOLE SHALL BE WATERPROOFED WITH BISMATIC MATERIAL.
2. CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOW HOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTION OR OTHER DEFECTS. THEY SHALL BE SMOOTH AND WELL-CLEANED BY SHOT-BLASTING OR BY SOME OTHER APPROVED METHOD. THEY SHALL BE COATED WITH ASPHALT PAINT WHICH SHALL RESULT IN A SMOOTH COATING, TOUGH AND TENACIOUS WHEN COLD, NOT TACKY OR BRITTLE. THEY SHALL BE GRAY IRON MEETING ASTM A-48 LATEST REVISION. MANHOLE COVERS FOR SANITARY SEWER SHALL BE NEENAH TYPE R-1722 W/R-1712-B-SP FRAME W/SELF-SEALING APPLICATION.
3. JOINTS: MANHOLE SECTIONS SHALL BE JOINED WITH A NOMINAL ½ INCH SIZE BUTYL RUBBER BASE GASKET MATERIAL, CONFORMING TO AASHTO M-198 AND FEDERAL SPECIFICATION SS-S-210A. JOINT CONFORMS TO ASTM C-443.
4. MANHOLES SHALL INCLUDE STEPS. SANITARY SEWER STANDARDS REVISIONS SHALL BE THAT STEPS ARE TO BE POLYPROPYLENE COATED STEEL REINFORCING OR AN APPROVED NON-CORROSIVE FIBERGLASS MATERIAL. THE COPOLYMER POLYPROPYLENE SHALL MEET THE REQUIREMENTS OF ASTMD-4101 WITH DEFORMED ⅜ INCH DIAMETER OR LARGER REINFORCING STEEL CONFORMING TO ASTM A-615, GRADE 60. STEPS SHALL BE A MAXIMUM OF 24 INCHES FROM TOP, 24 INCHES FROM BOTTOM AND 16 INCHES SPACING BETWEEN.

C. SANITARY FORCE MAINS

1. ALL SANITARY FORCE MAIN PIPE AND FITTINGS SHALL CONFORM TO ASTM D2241, STANDARD SPECIFICATION FOR POLY VINYL CHLORIDE (PVC) PRESSURE-RATED PIPE, (SDR 21, GREATER THAN 4 INCH DIAMETER).
2. TRACER WIRE SHALL BE INSTALLED WITH ALL SANITARY FORCE MAIN PIPE.

D. CASING

1. SANITARY SEWERS CONSTRUCTED WITH POLYVINYL CHLORIDE (PVC) AND INSTALLED UNDER RAILROADS SHALL BE CASED IN CONFORMANCE WITH AWWA STANDARD C900-89, STANDARD FOR POLYVINYL CHLORIDE (PVC) PRESSURE PIPE, 4 IN. THROUGH 12 IN. FOR WATER DISTRIBUTION, APPENDIX A.

3. APPLICATION

A. PERMITS AND CODES:
THE INTENT OF THIS SECTION OF THE SPECIFICATIONS IS THAT THE CONTRACTOR'S BID ON THE WORK COVERED HEREIN SHALL BE BASED UPON THE DRAWINGS AND SPECIFICATIONS BUT THAT THE WORK SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS AS AMENDED BY ANY WAIVERS. CONTRACTOR SHALL FURNISH ALL BONDS NECESSARY TO GET PERMITS FOR CUTS AND CONNECTIONS TO EXISTING SEWERS.

B. LOCAL STANDARDS:
THE TERM "LOCAL STANDARDS" AS USED HEREIN MEANS THE STANDARDS OF DESIGN AND CONSTRUCTION OF THE RESPECTIVE MUNICIPAL DEPARTMENT OR UTILITY COMPANY.

C. EXISTING IMPROVEMENTS:
THE CONTRACTOR SHALL MAINTAIN IN OPERATING CONDITION ALL ACTIVE UTILITIES, SEWERS AND OTHER DRAINS ENCOUNTERED IN THE SEWER INSTALLATION. THE CONTRACTOR SHALL REPAIR TO THE SATISFACTION OF THE OWNER ANY DAMAGE TO EXISTING ACTIVE IMPROVEMENTS.

D. WORKMANSHIP:
THIS WORK SHALL CONFORM TO ALL LOCAL, STATE AND NATIONAL CODES AND TO BE APPROVED BY ALL LOCAL AND STATE AGENCIES HAVING JURISDICTION.

E. TRENCHING:
LAY ALL PIPE IN OPEN TRENCHES, EXCEPT WHEN THE LOCAL AUTHORITY GIVES WRITTEN PERMISSION FOR TUNNELING. OPEN THE TRENCH SUFFICIENTLY AHEAD OF PIPE-LAYING TO REVEAL ANY OBSTRUCTIONS. THE MIN. WIDTH OF TRENCH SHALL BE 1.25 TIMES THE OUTSIDE DIA. PLUS 12 INCHES. SHEET AND BRACE TRENCH AS NECESSARY TO PROTECT WORKMEN AND ADJACENT STRUCTURES. ALL TRENCHING TO COMPLY WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION STANDARDS. KEEP TRENCHES FREE FROM WATER WHILE CONSTRUCTION IS IN PROGRESS. UNDER NO CIRCUMSTANCES SHALL PIPE OR APPURTENANCES BE LAID IN STANDING WATER. CONDUCT THE DISCHARGE FROM TRENCH DE-WATERING TO DRAINS OR NATURAL DRAINAGE CHANNELS.

F. SPECIAL SUPPORTS:
WHENEVER, IN THE OPINION OF THE ENGINEER, THE SOIL AT OR BELOW THE PIPE GRADE IS UNSUITABLE FOR SUPPORTING SEWERS AND APPURTENANCES SPECIFIED IN THIS SECTION, SUCH SPECIAL SUPPORT, IN ADDITION TO THOSE SHOWN OR SPECIFIED, SHALL BE PROVIDED AS THE ENGINEER MAY DIRECT, AND THE CONTRACT WILL BE ADJUSTED.

G. BACKFILLING:
BACKFILL SHALL BE PLACED AS SHOWN IN THE PLANS. COMPACT THIS BACKFILL THOROUGHLY, TAKING CARE NOT TO DISTURB THE PIPE. BACKFILL UNDER AND WITHIN 5 FEET OF WALKS, PARKING AREAS, DRIVEWAYS AND STREETS SHALL BE GRANULAR MATERIAL ONLY AND THOROUGHLY COMPACTED BY APPROVED METHODS.

H. FLOW CHANNELS:
THE FLOW CHANNELS WITHIN MANHOLES SHALL BE AN INTEGRAL PART OF THE PRECAST BASE. THE CHANNELS SHALL BE SHAPED AND FORMED FOR A CLEAN TRANSITION WITH PROPER HYDRAULICS TO ALLOW THE SMOOTH CONVEYANCE OF FLOW THROUGH THE MANHOLE. THE BENCH WALL SHALL BE FORMED TO THE CROWN OF THE INLET AND OUTLET PIPES TO FORM A "U" SHAPED CHANNEL. THE BENCH WALL SHALL SLOPE BACK FROM THE CROWN AT ½ INCH PER FOOT TO THE MANHOLE WALL.

I. LEAKAGE TESTING:
THE CONTRACTOR SHALL FURNISH THE NECESSARY EQUIPMENT TO TEST SEWERS FOR INFILTRATION. ALL SANITARY SEWER GRAVITY LINES, UPON COMPLETION, SHALL BE REQUIRED TO PASS ONE OF THE FOLLOWING TESTS:

J. HYDROSTATIC TEST:
A HYDROSTATIC TEST SHALL BE PERFORMED WITH A MINIMUM OF TWO (2) FEET OF POSITIVE HEAD. THE RATE OF EXFILTRATION OR INFILTRATION SHALL NOT EXCEED TWO HUNDRED (200) GALLONS PER INCH OF PIPE DIAMETER PER LINEAR MILE PER DAY.

K. LOW PRESSURE AIR TEST:
A LOW PRESSURE AIR TEST SHALL BE CONDUCTED IN ACCORDANCE WITH ASTM F1417, STANDARD TEST METHOD FOR INSTALLATION ACCEPTANCE OF PLASTIC GRAVITY SEWER LINES USING LOW PRESSURE AIR, FOR PLASTIC PIPE.

L. ALL SANITARY FORCE MAIN LINES, UPON COMPLETION, SHALL BE REQUIRED TO PASS A LEAKAGE TEST CONDUCTED IN ACCORDANCE WITH AWWA STANDARD C605-94, AWWA STANDARD FOR UNDERGROUND INSTALLATION OF POLYVINYL CHLORIDE (PVC) PRESSURE PIPE AND FITTINGS FOR WATER.

M. ALL SANITARY SEWER MANHOLES SHALL ALSO BE AIR TESTED IN ACCORDANCE WITH ASTM C1244-93, STANDARD TEST METHOD FOR CONCRETE SEWER MANHOLES BY NEGATIVE AIR PRESSURE (VACUUM) TEST.

N. FLUSHING SEWERS:
FLUSH ALL SANITARY SEWERS EXCEPT BUILDING SEWERS WITH WATER TO OBTAIN FREE FLOW THROUGH EACH LINE. REMOVE ALL SILT AND TRASH FROM APPURTENANCES JUST PRIOR TO ACCEPTANCE OF WORK.

O. PLASTIC SEWER PIPE INSTALLATION:
PLASTIC SEWER PIPE SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321 PER LATEST REVISION. PIPES SHALL BE TESTED AFTER THIRTY DAYS, USING A MANDREL THAT IS 95% OF THE INSIDE DIAMETER OF THE PIPE BEING TESTED. SAID MANDREL SHALL BE PULLED BY HAND THROUGH EACH PIPE SECTION TO ENSURE DEFLECTION IS LESS THAN ACCEPTABLE LIMITS.

P. STORM WATER CONNECTIONS:
NO ROOF DRAINS, FOOTING DRAINS AND/OR SURFACE WATER DRAINS MAY BE CONNECTED TO THE SANITARY SEWER SYSTEMS, INCLUDING TEMPORARY CONNECTIONS DURING CONSTRUCTION.

Q. WATERLINE CROSSING:
WHERE WATER LINES AND SANITARY SEWERS CROSS AND WATER LINES CANNOT BE PLACED ABOVE THE SEWER WITH A MINIMUM OF 18 INCHES VERTICAL CLEARANCE, THE SEWER MUST BE CONSTRUCTED OF WATER WORKS GRADE DUCTILE IRON PIPE WITH MECHANICAL JOINTS WITHIN 10 FEET OF THE WATER LINE.

R. UTILITIES:
IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERITY ALL EXISTING UTILITIES AND CONDITIONS PERTAINING TO HIS WORK. IT SHALL ALSO BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE OWNERS OF THE VARIOUS UTILITIES BEFORE WORK IS STARTED. THE CONTRACTOR SHALL NOTIFY IN WRITING THE OWNER AND THE ENGINEER OF ANY CHANGES, ERRORS OR OMISSIONS FOUND ON THESE PLANS OR IN THE FIELD BEFORE WORK IS STARTED OR RESUMED.

S. SERVICE LATERALS:
INDIVIDUAL BUILDING LINES SHALL BE 6 INCHES IN DIAMETER AND OF MATERIAL EQUAL TO THAT SPECIFIED IN 2A OF THIS SECTION. SERVICE LINES SHALL BE CONNECTED TO THE MAIN SEWER AT LOCATIONS SHOWN IN THESE PLANS.

CROSSROAD ENGINEERS, PC
Transportation & Development Consultants
3417 SHERMAN DR. BEECH GROVE, IN 46107 (317) 780-1555

SPECIFICATIONS

HOMESTEADS AT HILLVIEW - SECTION 2

JOB No.	.	DRAWN	LMC	CHECKED	TEN
DATE	JULY 17, 2014	DESIGNED	WFH	APPR.	GJI

GREGORY J. ILKO REGISTERED NO. 10300059 STATE OF INDIANA PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	BY	APPR.
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DIRECTORY PATH : R:\Active\John Grimmer\Hillview CC Property\CAD\PHASE 2 - PLANS
FILENAME : 1100 SPECIFICATIONS.dwg
DATE/USER : 7/14/2014 4:31 PM / Ecarson