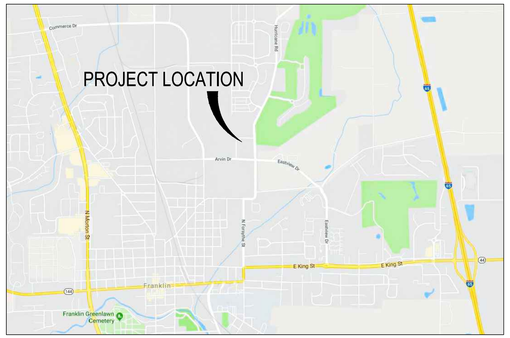
FINAL CONSTRUCTION PLANS

HURRICANE INDUSTRIAL PARK - LOT 11

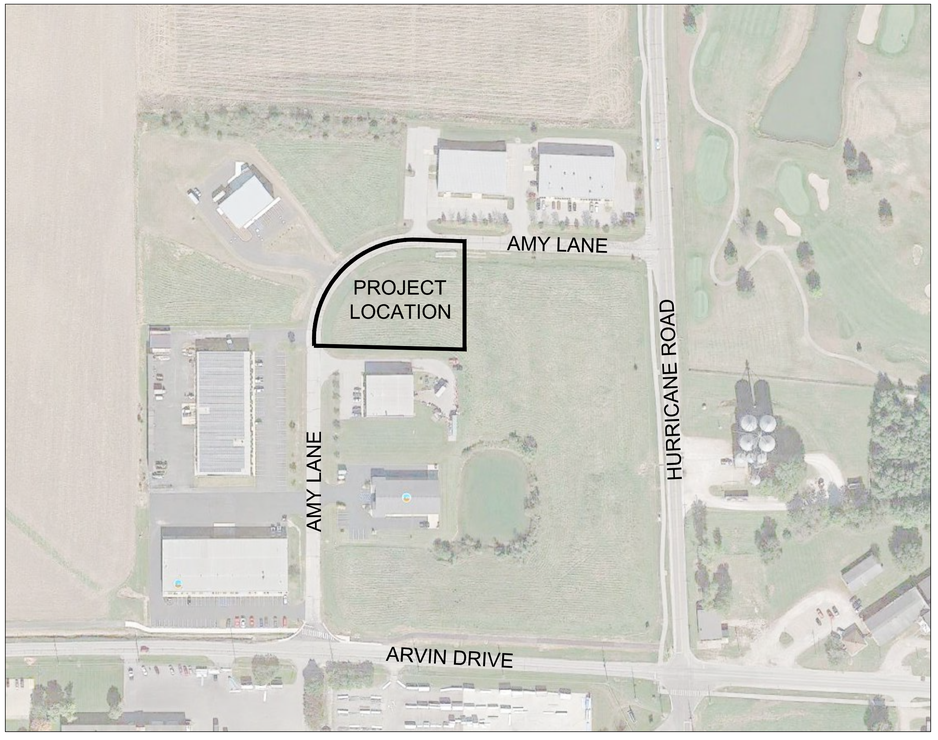
1551 AMY LANE

FRANKLIN, INDIANA



VICINITY MAP

NO SCALE



LOCATION MAP

NO SCALE

PLAN INDEX	
SHEET #	SUBJECT
100	TITLE SHEET
200	TOPOGRAPHICAL SURVEY
300	SITE DIMENSION PLAN
400	UTILITY PLAN
500	GRADING PLAN
600	EROSION CONTROL PLAN
601	STORMWATER POLLUTION PREVENTION PLAN
700	LANDSCAPE PLAN
800	MISCELLANEOUS DETAILS
900	SPECIFICATIONS

OWNER

WILSON FARM PROPERTIES, LLC
622 N. MADISON AVENUE, SUITE 11
GREENWOOD, IN 46142
PHONE: (317) 710-7741
CONTACT: SID BLAZEK
EMAIL: sblazek@dsinvestments.net

ENGINEER

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

DEVELOPER

AVERA COMMERCIAL, LLC
1584 E. COUNTY ROAD 600 SOUTH
FRANKLIN, IN 46131
PHONE: (317) 443-9608
CONTACT: ADRIAN SODREL
EMAIL: asodrel@gmail.com

DIRECTORY PATH : P:\Active\Avera Commercial\Hurricane BP - Lot 11\Design\CAD\Plans
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CROSSROAD ENGINEERS, PC
DEVELOPMENT CONSULTANTS
3417 SHERMAN DRIVE
BEECH GROVE, IN 46107
(317) 780-1555
CROSSROADENGINEERS.COM

SHEET 100

TITLE SHEET

HURRICANE INDUSTRIAL PARK - LOT 11

JOB No.	-	DRAWN	LMC/KLF	CHECKED	TEN	APPR.	GJI
DATE	DECEMBER 5, 2019	DESIGNED	DMS				

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

NO.	DATE	REVISIONS	BY	APPR.
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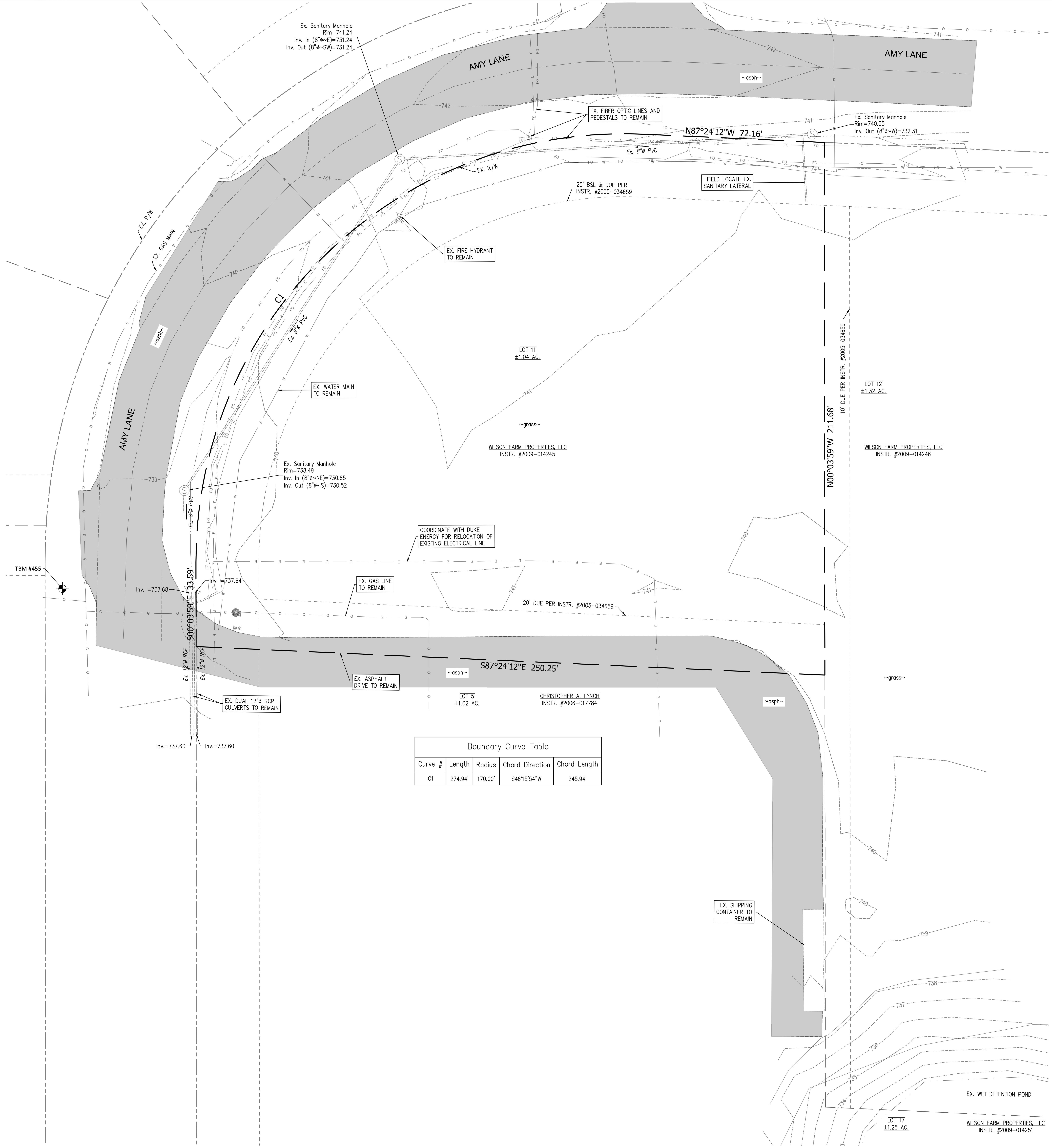

Boundary Curve Table				
Curve #	Length	Radius	Chord Direction	Chord Length
C1	274.94'	170.00'	S46°15'54"W	245.94'

BENCHMARK INFORMATION

THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29) WAS ASCERTAINED FROM UCS AND GS SECOND ORDER BENCHMARK DNR TBM HC 8 A 1988

DESIGNATION – DNR TBM HC 8 A 1988
VERT. ORDER – SECOND

DESCRIPTION:
DNR TBM HC 8 A 1988
IN JOHNSON COUNTY, FRANKLIN QUADRANGLE, IN THE NE 1/4 OF SECTION 13, TOWNSHIP 12 NORTH, RANGE 4 EAST, 2nd P.M.; AT FRANKLIN; AT THE 100 NORTH ROAD BRIDGE OVER HURRICANE CREEK; SET IN THE TOP OF THE NORTHEAST CONCRETE WINGWALL OF THE BRIDGE, 15.2 FEET NORTH OF THE CENTERLINE OF THE ROAD, 1.2 FEET NORTH OF THE NORTH FACE OF THE BRIDGE DECK, 0.9 FOOT EAST OF THE WEST FACE OF THE WINGWALL, 0.8 FOOT SOUTH OF THE NORTH FACE OF THE WINGWALL, 0.3 FOOT BELOW THE ROAD; A "PK" NAIL SET IN A DRILL HOLE, INSIDE A CUT CIRCLE.

ELEV.=730.449 (NGVD 29)

TBM #455
CUT SQUARE ATOP CONCRETE END SECTION

ELEV.=738.08

FLOODPLAIN INFORMATION

BY GRAPHIC PLOTTING ONLY, THIS TRACT OF LAND DESCRIBED HEREON LIES WITHIN ZONE 'X' (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AND IS NOT IN A SPECIAL FLOOD HAZARD AREA AS PLOTTED ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP FOR JOHNSON COUNTY, INDIANA, COMMUNITY PANEL NO. 18081C0231D, WHICH BEARS AN EFFECTIVE DATE OF AUGUST 02, 2007.

LEGAL DESCRIPTION

PER INSTR. #2009-014245
LOT 11 IN HURRICANE INDUSTRIAL PARK, SECTION 3, AS PER PLAT THEREOF, RECORDED DECEMBER 14, 2005, IN PLAT BOOK D, PAGE 619 A&B, AS INSTRUMENT NO. 2005-034659 IN THE OFFICE OF THE RECORDER OF JOHNSON COUNTY, INDIANA.

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.

EXISTING LEGEND

POWERPOLE, POWERPOLE W/RISER, POWERPOLE W/LIGHT, LIGHT POLE, ELECTRIC METER, ELECTRIC BOX, YARD LIGHT, GUIDE WIRE, TELEPHONE MANHOLE, TELEPHONE RISER, WATER VALVE, FIRE HYDRANT, WELL, WATER MANHOLE, WATER METER, GAS VALVE, GAS VALVE, CABLE TV RISER, CLEANOUT, SIGN, MAILBOX, STORM ROUND INLET, STORM CURB INLET, RIGHT-OF-WAY MARKER, TREE, BUSH & STUMP, TEMP. BENCHMARK, MONUMENT FOUND

CONTOURS, PROPERTY LINE, EASEMENT LINE, RIGHT-OF-WAY, ADJOINER LINE, PAVEMENT LINE, FIELD LINE, DITCH, GAS LINE, TELEPHONE LINE, WATER LINE, FIBER OPTIC LINE, ELECTRIC LINE, TREE LINE, SANITARY SEWER W/MANHOLE, STORM SEWER W/MANHOLE END SECTION

(D) DEED (M) MEASURE (PS) PLAT SURVEY

ASPHALT, BUILDING, CONCRETE, GRAVEL, WOODS, REMOVAL/DEMOLISH

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.

UTILITIES

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

SEWER
CITY OF FRANKLIN
DEPARTMENT OF PUBLIC WORKS
796 S. STATE STREET
FRANKLIN, IN 46131
PHONE: (317) 736-3648
CONTACT: SALLY BROWN
EMAIL: sbrown@franklin.in.gov

GAS
VECTREN ENERGY
600 INDUSTRIAL DRIVE
FRANKLIN, IN 46131
PHONE: (765) 287-2150
CONTACT: MOSTAFA KHALLAD
EMAIL: mostafa.khallad@centerpointenergy.com

WATER
INDIANA AMERICAN WATER
153 N. EMERSON AVENUE
GREENWOOD, IN 46143
PHONE: (317) 893-3560
CONTACT: ADAM BOONE
EMAIL: adam.boone@amwater.com

FIRE DEPARTMENT
CITY OF FRANKLIN FIRE DEPARTMENT
1800 THORNBURG LANE
FRANKLIN, IN 46131
PHONE: (317) 736-3650
CONTACT: BRYNE PURSIFULL
EMAIL: bpursifull@franklin.in.gov

FIBER OPTIC
CENTURY LINK
50 N. JACKSON STREET
FRANKLIN, IN 46131
PHONE: (317) 736-4863
CONTACT: EDDIE FIELDS
EMAIL: paul.e.fields@centurylink.com

METRONET
8036 COLE WOOD BLVD.
INDIANAPOLIS, IN 46239
PHONE: (317) 809-8067
CONTACT: DOUG RECKART
EMAIL: doug.reckart@metronetinc.com

ELECTRIC
DUKE ENERGY (SERVICE)
2515 N. MORTON STREET
FRANKLIN, IN 46131
PHONE: (317) 736-2017
CONTACT: TAYLOR AUSTIN
EMAIL: taylor.austin@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.

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BEECH GROVE, IN 46107
(317) 780-1555
CROSSROADENGINEERS.COM

TOPOGRAPHICAL SURVEY
HURRICANE INDUSTRIAL PARK - LOT 11

JOB No.	.	DRAWN LMC/KLF	CHECKED TEN
DATE DECEMBER 5, 2019		DESIGNED DMS	APPR. GJI

DEREK M. SNYDER REGISTERED NO. 11200008 STATE OF INDIANA PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	BY	APPR.
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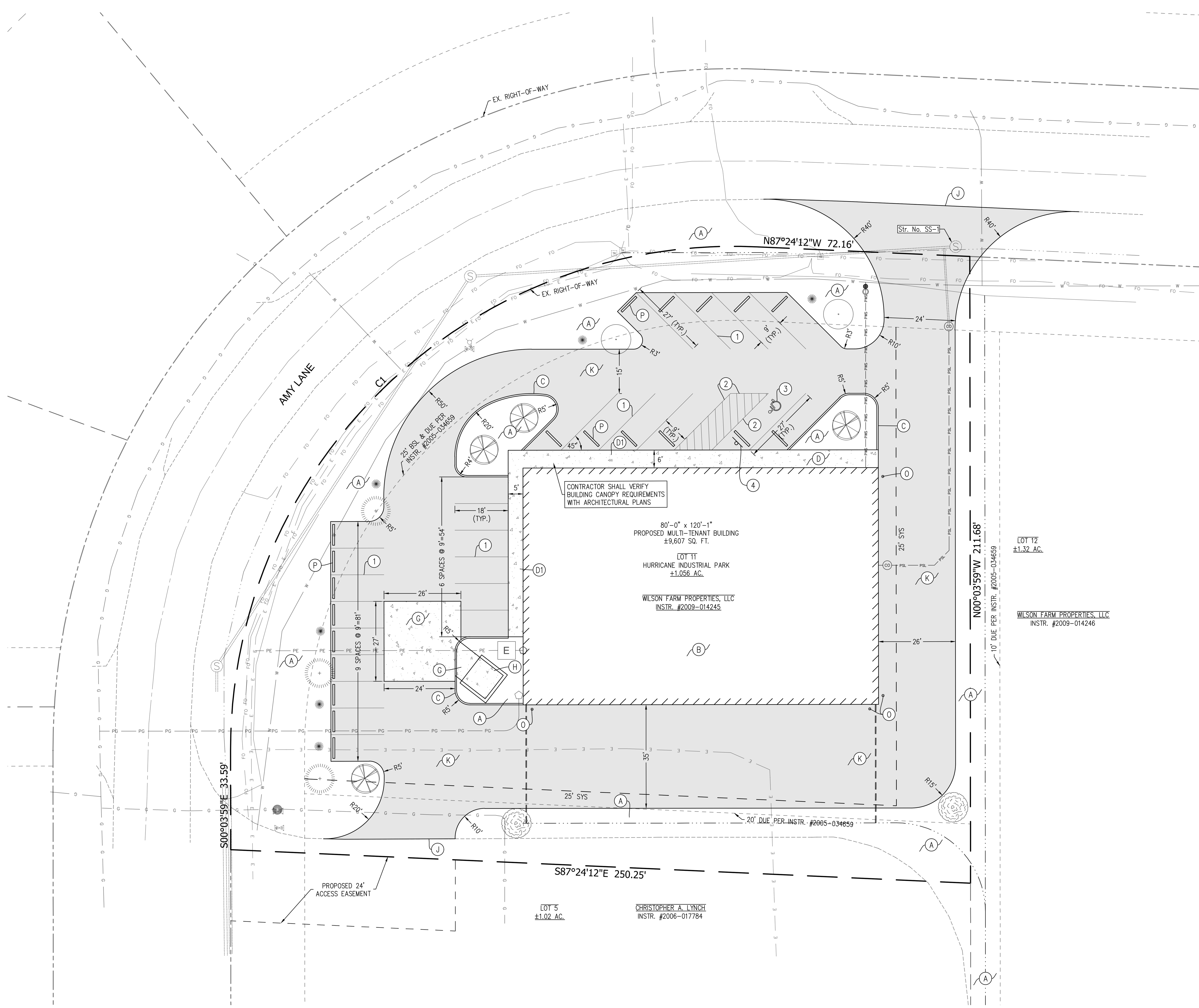


Boundary Curve Table

Curve #	Length	Radius	Chord Direction	Chord Length
C1	274.94'	170.00'	S46°15'54"W	245.94'

EXISTING LEGEND

- POWERPOLE
- POWERPOLE W/RISER
- POWERPOLE W/LIGHT
- LIGHT POLE
- ELECTRIC METER
- ELECTRIC BOX
- YARD LIGHT
- GUIDE WIRE
- TELEPHONE MANHOLE
- TELEPHONE RISER
- WATER VALVE
- FIRE HYDRANT
- WELL
- WATER MANHOLE
- WATER METER
- GAS VALVE
- GAS VALVE
- CABLE TV RISER
- CLEANOUT
- SIGN
- MAILBOX
- STORM ROUND INLET
- STORM CURB INLET
- RIGHT-OF-WAY MARKER
- TREE, BUSH & STUMP
- TEMP. BENCHMARK
- MONUMENT FOUND
- CONTOURS
- PROPERTY LINE
- EASEMENT LINE
- RIGHT-OF-WAY
- ADJOINER LINE
- PAVEMENT LINE
- FIELD LINE
- DITCH
- GAS LINE
- TELEPHONE LINE
- WATER LINE
- FIBER OPTIC LINE
- ELECTRIC LINE
- TREE LINE
- SANITARY SEWER W/MANHOLE
- STORM SEWER W/MANHOLE
- END SECTION

(D) DEED (M) MEASURE (PS) PLAT SURVEY

ASPHALT, BUILDING, CONCRETE, GRAVEL, WOODS, REMOVAL/DEMOLISH

SITE DIMENSION LEGEND

- (A) MULCH SEEDING/LANDSCAPE AREAS
- (B) STRUCTURE FOUNDATION – PER BUILDING PLANS
- (C) STRAIGHT CONCRETE CURB (SEE DETAIL-SHEET 800)
- (D) 4" CONCRETE SIDEWALK (SEE DETAIL-SHEET 800)
- (D1) MONOLITHIC CONCRETE CURB AND SIDEWALK (SEE DETAIL-SHEET 800)
- (G) TYPICAL CONCRETE SECTION
  6" PORTLAND CEMENT CONCRETE PAVEMENT ON
  7" COMPACTED AGGREGATE #53 ON
  COMPACTED SUBGRADE (SEE DETAIL-SHEET 800)
- (H) TRASH ENCLOSURE (SEE DETAIL-SHEET 800)
- (J) SAWCUT
- (K) TYPICAL ASPHALT SECTION
  1.5" HMA SURFACE TYPE 'B' 9.5mm, ON
  3.5" HMA INTERMEDIATE TYPE 'B' 19.0mm, ON
  8" COMPACTED AGGREGATE #53, ON
  COMPACTED SUBGRADE (SEE DETAIL-SHEET 800)
- (O) PIPE BOLLARD (SEE DETAIL-SHEET 800)
- (P) CONCRETE PARKING BARRIER (SEE DETAIL-SHEET 800)
- (1) LINE, PAINTED, SOLID WHITE, 4"
- (2) LINE, PAINTED, SOLID BLUE, 4"
- (3) HANDICAP SYMBOL, PAINTED, SOLID BLUE, 4" (SEE DETAIL-SHEET 800)
- (4) SIGNAGE (SEE DETAIL THIS SHEET)

PROPOSED LEGEND

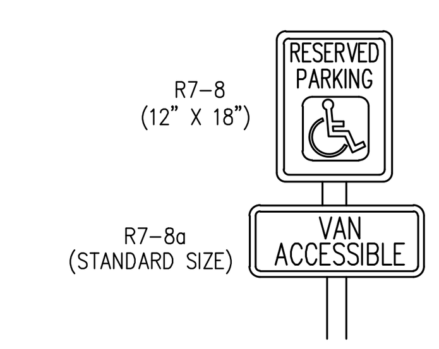
- PROPERTY LINE
- SECTION LINE
- SETBACK LINE
- EASEMENT LINE
- DITCH LINE
- SANITARY SEWER LATERAL WITH CLEANOUT
- ROOF DRAIN
- ELECTRIC LINE
- WATER SERVICE LINE
- GAS LINE
- WATER VALVE
- WATER VALVE
- ELECTRIC TRANSFORMER
- SIGN

SITE DIMENSION NOTES

1. THE BUILDING FOOTPRINT SHOWN HEREON IS BASED ON ARCHITECTURAL DRAWINGS DATED MARCH 30, 2019 WHICH WERE PROVIDED AND PREPARED BY AVERA COMMERCIAL, LLC. CONTRACTOR SHALL VERIFY BUILDING DIMENSIONS, DOOR LOCATIONS, UTILITY SERVICE REQUIREMENTS, ETC. WITH AVERA COMMERCIAL PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL NOTIFY ENGINEER, IF PROOF ROLL OF SUBGRADE FAILS, TO DETERMINE IF LIME STABILIZATION OF SUBGRADE IS NECESSARY.
3. ALL RADII DIMENSIONS ARE TO THE FACE OF PROPOSED CURB OR EDGE OF PAVEMENT.
4. SIGNAGE SHALL INCLUDE ALL NECESSARY HARDWARE AND FITTINGS, INCLUDING 10 FT. OF 11 GAUGE FLANGED CHANNEL SIGN POST.
5. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL SIGNAGE. VERIFY CONFLICTS WITH OWNER.
6. 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.
7. CONTRACTOR SHALL VERIFY ALL NECESSARY REQUIREMENTS FOR TRASH ENCLOSURE WITH OWNER AND/OR ARCHITECT PRIOR TO CONSTRUCTION.
8. CONTRACTOR SHALL COORDINATE WITH APPLICABLE UTILITY COMPANY AND BUILDING PLANS FOR WATER, CABLE, ELECTRIC, GAS, AND TELEPHONE CONNECTION SERVICE POINTS.
9. 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.

PARKING ANALYSIS

INDUSTRIAL USE		
EMPLOYEES	=	5 EMPL./TENANT
REQUIRED RATIO	=	1 SPCS/EMPL.
TOTAL REQUIRED SPACES	=	20 SPACES
STANDARD PARKING SPACES	=	25 SPACES
HANDICAP ACCESSIBLE SPACES	=	1 SPACES
TOTAL PROPOSED PARKING SPACES	=	26 SPACES



SIGNAGE DETAILS (4)

NOT TO SCALE

SCALE: 1" = 20'

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

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TRANSPORTATION & DEVELOPMENT CONSULTANTS
CROSSROADENGINEERS.COM

DEREK M. SNYDER
REGISTERED
NO. 11200008
STATE OF INDIANA
PROFESSIONAL ENGINEER

SITE DIMENSION PLAN

HURRICANE INDUSTRIAL PARK - LOT 11

JOB No.	-	DATE	DECEMBER 5, 2019
DRAWN	LMC/KLF	DESIGNED	DMS
CHECKED	TEN	APPR.	GJI

SHEET 300

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SHEET 300

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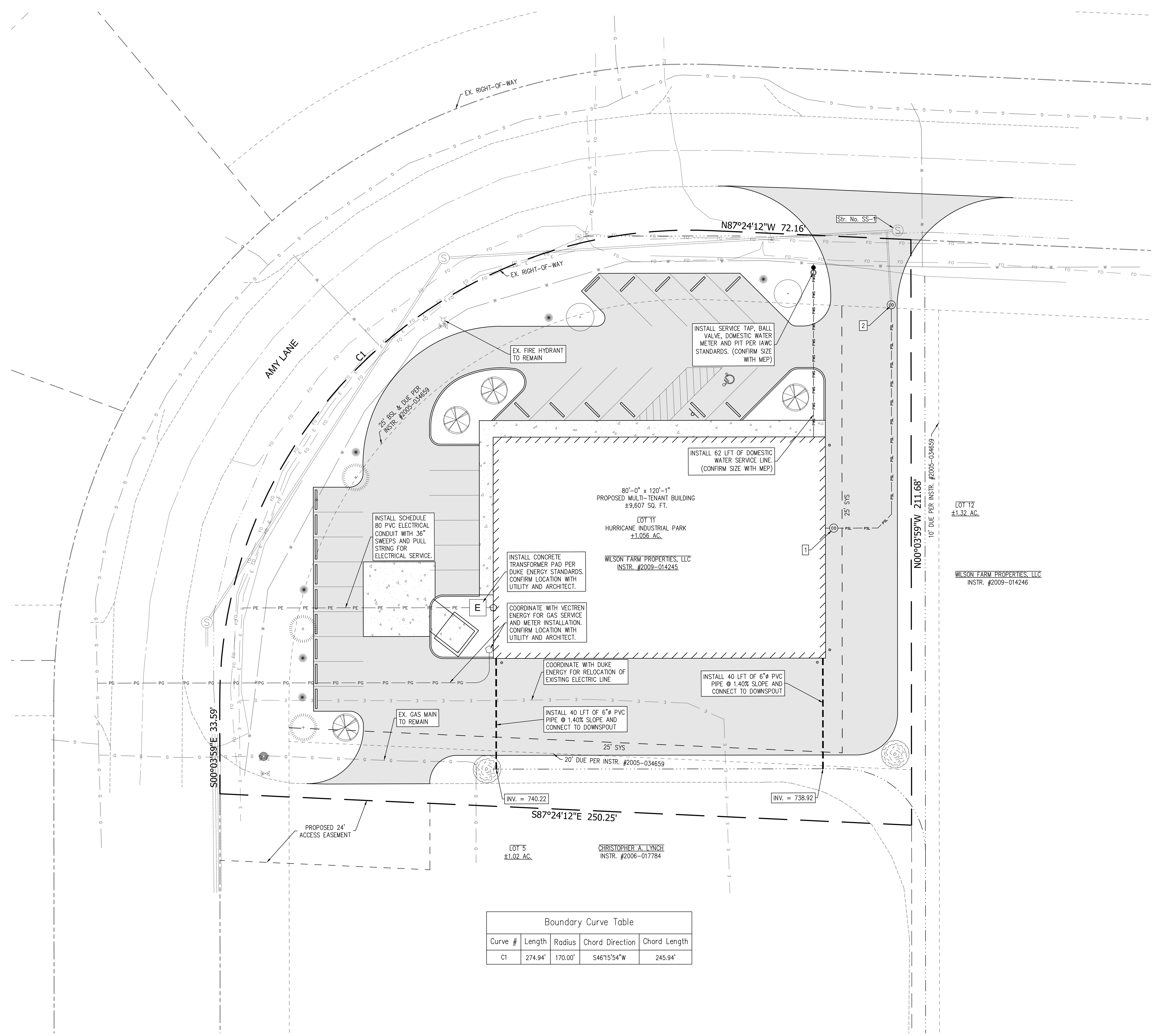

Boundary Curve Table				
Curve #	Length	Radius	Chord Direction	Chord Length
C1	274.94'	170.00'	S46°15'54"W	245.94'

20 0 20 40
SCALE: 1" = 20'

UTILITIES NOTES

1. THE UTILITY SERVICE POINT ENTRY LOCATIONS SHOWN HEREON ARE CONCEPTUAL. THE CONTRACTOR SHALL VERIFY ALL SERVICE POINTS WITH THE UTILITY COMPANY, ARCHITECT AND AVERA COMMERCIAL, LLC PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL CONFIRM DOMESTIC WATER METER REQUIREMENTS, INCLUDING BUT NOT LIMITED TO THE LOCATION AND SIZE, WITH THE ARCHITECT AND INDIANA AMERICAN WATER COMPANY (IAWC) PRIOR TO CONSTRUCTION.
3. WATER SERVICE, METER PIT AND METER INSTALLATIONS SHALL BE IN ACCORDANCE WITH INDIANA AMERICAN WATER COMPANY (IAWC) STANDARDS AND SPECIFICATIONS. CONTRACTOR SHALL CONTACT IAWC (1-800-492-8373) FOR NEW SERVICE REQUEST AND WATER METER APPLICATION.
4. 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.
5. CONTRACTOR SHALL COORDINATE WITH APPLICABLE UTILITY COMPANIES AND BUILDING PLANS FOR WATER, CABLE, ELECTRIC, AND TELEPHONE CONNECTION SERVICE POINTS.
6. ALL FIELD TILES DISTURBED DURING CONSTRUCTION MUST BE REPAIRED/CONNECTED TO NEW DRAINAGE FACILITIES.
7. CONTRACTOR SHALL VERIFY LOCATION OF DOWNSPOUTS WITH THE ARCHITECT PRIOR TO INSTALLING ROOF DRAIN PIPE. ALL ROOF DRAIN PIPE SHALL BE NON-PERFORATED PVC EQUIPPED WITH ANIMAL GUARDS AT THE OUTLETS.
8. 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
- SETBACK LINE
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- WATER VALVE
- WATER VALVE
- E — ELECTRIC TRANSFORMER
- SIGN

SANITARY STRUCTURE DATA TABLE

STR. NO. SS-1

RECONSTRUCT EXISTING SANITARY SEWER MANHOLE TO GRADE

EX. RIM=740.55
PROP. RIM=741.47

SANITARY LATERAL DATA TABLE

INSTALL SANITARY CLEANOUT AND PVC (SDR-35) SANITARY LATERAL AT 1.50% MIN. SLOPE. CONTRACTOR SHALL CONFIRM LATERAL INVERT AND EXIT LOCATION WITH BUILDING PLANS.

RUN	U.S. INVERT	DIAMETER	LENGTH	SLOPE
1	738.00	6"	100'	1.50%
2	MATCH EXISTING	6"	N/A	MATCH EXISTING

NOTE: CONTRACTOR SHALL INSTALL CLEANOUT #2 AND CONNECT TO EXISTING LATERAL. VERIFY DEPTH PRIOR TO CONSTRUCTION AND REPORT TO ENGINEER IF THE MINIMUM SLOPE CANNOT BE PROVIDED.

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TRANSPORTATION & DEVELOPMENT CONSULTANTS
3417 SHERMAN DRIVE
BEECH GROVE, IN 46107
(317) 780-1555
CROSSROADENGINEERS.COM

SHEET 400

UTILITY PLAN

HURRICANE INDUSTRIAL PARK - LOT 11

JOB No.	.	DRAWN	LMC/KLF	CHECKED	TEN
DATE	DECEMBER 5, 2019	DESIGNED	DMS	APPR.	GJI

DEREK M. SNYDER REGISTERED NO. 11200008 STATE OF INDIANA PROFESSIONAL ENGINEER

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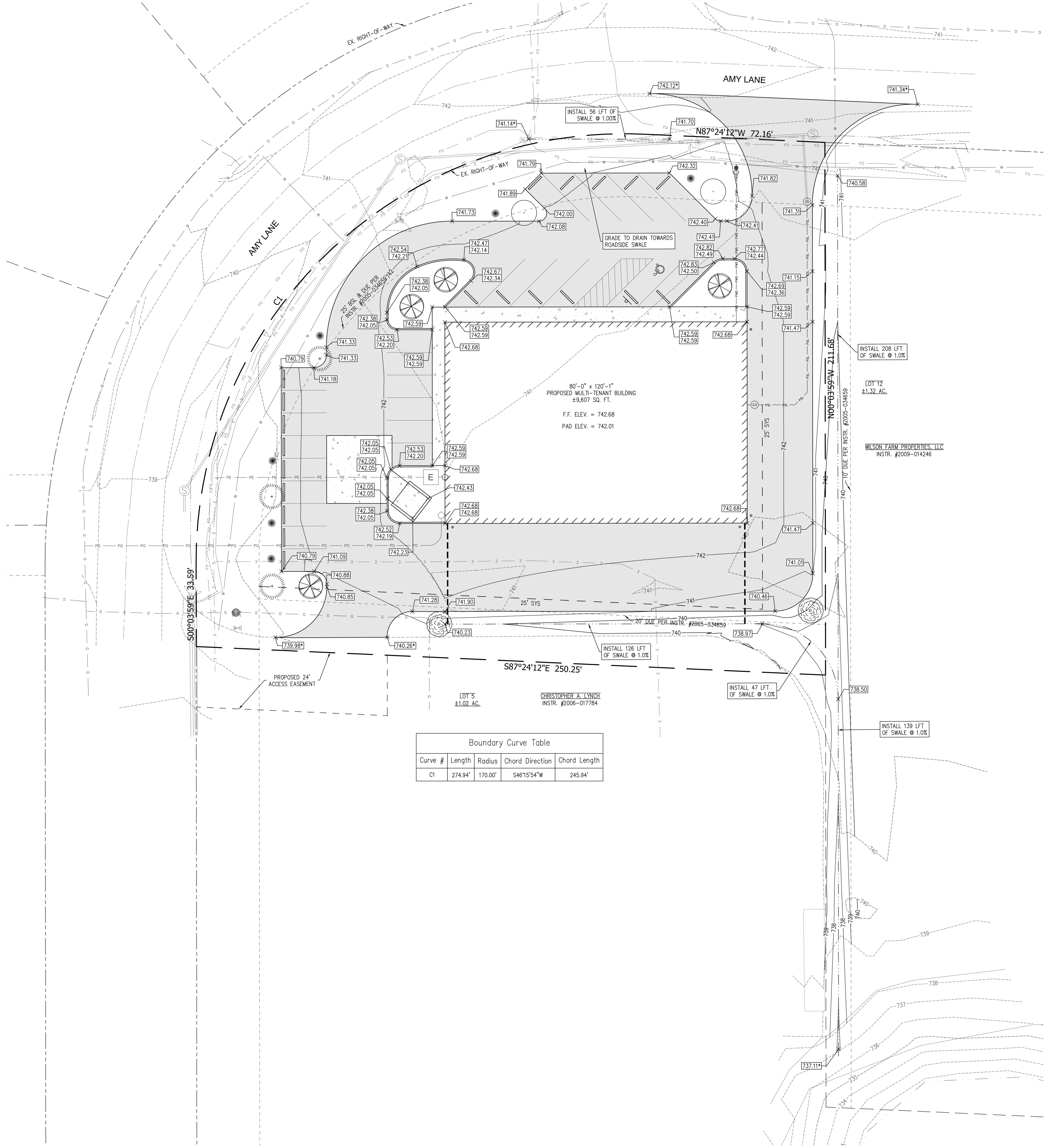
SHEET 400



Boundary Curve Table

Curve #	Length	Radius	Chord Direction	Chord Length
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GRADING NOTES

1. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM THE BUILDING IN FINAL GRADING OF SITE. CONTRACTOR SHALL COORDINATE WITH THE ARCHITECT TO DETERMINE PROPER FOUNDATION EXPOSURE FOR THE BUILDING, HOWEVER, IN NO INSTANCE SHALL DRAINAGE TOWARDS THE BUILDING FOUNDATION BE ALLOWED.
2. CONTRACTOR SHALL NOT ALLOW DRAINAGE FROM PROJECT SITE TO DISCHARGE ONTO ADJACENT PROPERTIES IN FINAL GRADING OF SITE. CONTRACTOR SHALL PLACE A BERM WHERE NECESSARY. SEE DITCH DETAIL (SHEET 800).

GRADING LEGEND

860.00 TOP OF CURB / 859.50 EDGE OF PAVEMENT; 860.00 FINISH GRADE	PROPOSED ELEVATIONS
860.00 * / 859.50 *; 860.00 *	PROPOSED ELEVATIONS (TO BE FIELD VERIFIED)
F.F. ELEV. = XXX.XX	PROPOSED FINISH FLOOR ELEVATION
— · · · —	PROPOSED DRAINAGE SWALE
- - - 800 - - -	EXISTING CONTOURS
—— 800 ——	PROPOSED CONTOURS

BENCHMARK INFORMATION

THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29) WAS ASCERTAINED FROM UCS AND GS SECOND ORDER BENCHMARK DNR TBM HC 8 A 1988

DESIGNATION – DNR TBM HC 8 A 1988
VERT. ORDER – SECOND

DESCRIPTION:
DNR TBM HC 8 A 1988
IN JOHNSON COUNTY, FRANKLIN QUADRANGLE, IN THE NE $\frac{1}{4}$ OF SECTION 13, TOWNSHIP 12 NORTH, RANGE 4 EAST, 2nd P.M.; AT FRANKLIN; AT THE 100 NORTH ROAD BRIDGE OVER HURRICANE CREEK; SET IN THE TOP OF THE NORTHEAST CONCRETE WINGWALL OF THE BRIDGE, 15.2 FEET NORTH OF THE CENTERLINE OF THE ROAD, 1.2 FEET NORTH OF THE NORTH FACE OF THE BRIDGE DECK, 0.9 FOOT EAST OF THE WEST FACE OF THE WINGWALL, 0.8 FOOT SOUTH OF THE NORTH FACE OF THE WINGWALL, 0.3 FOOT BELOW THE ROAD; A "PK" NAIL SET IN A DRILL HOLE, INSIDE A CUT CIRCLE.

ELEV.=730.449 (NGVD 29)

TBM #455
CUT SQUARE ATOP CONCRETE END SECTION

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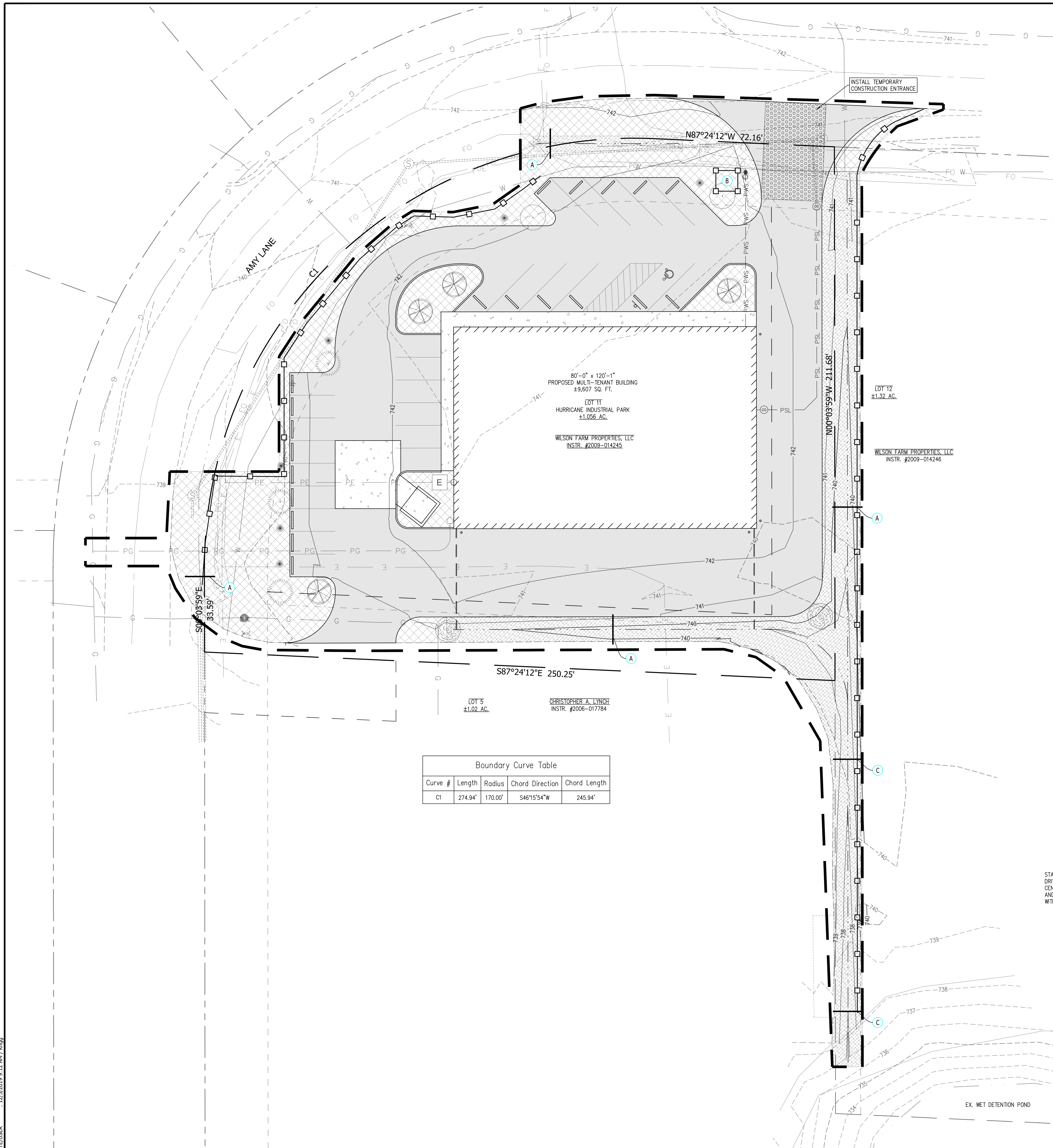
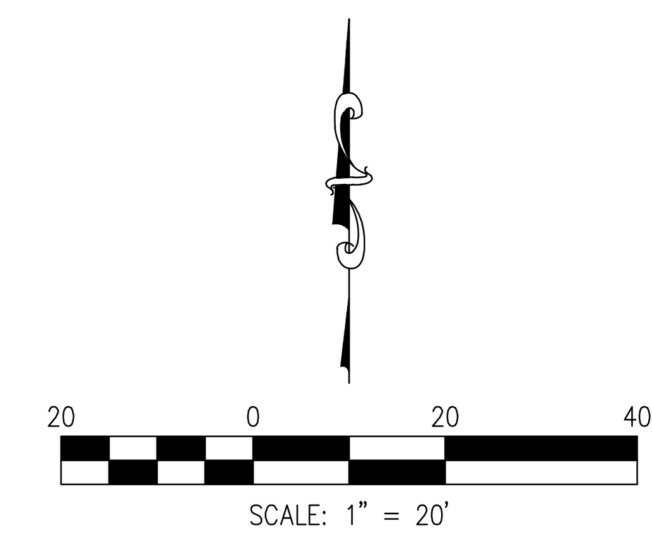


Boundary Curve Table

Curve #	Length	Radius	Chord Direction	Chord Length
C1	274.94'	170.00'	S46°15'54"W	245.94'

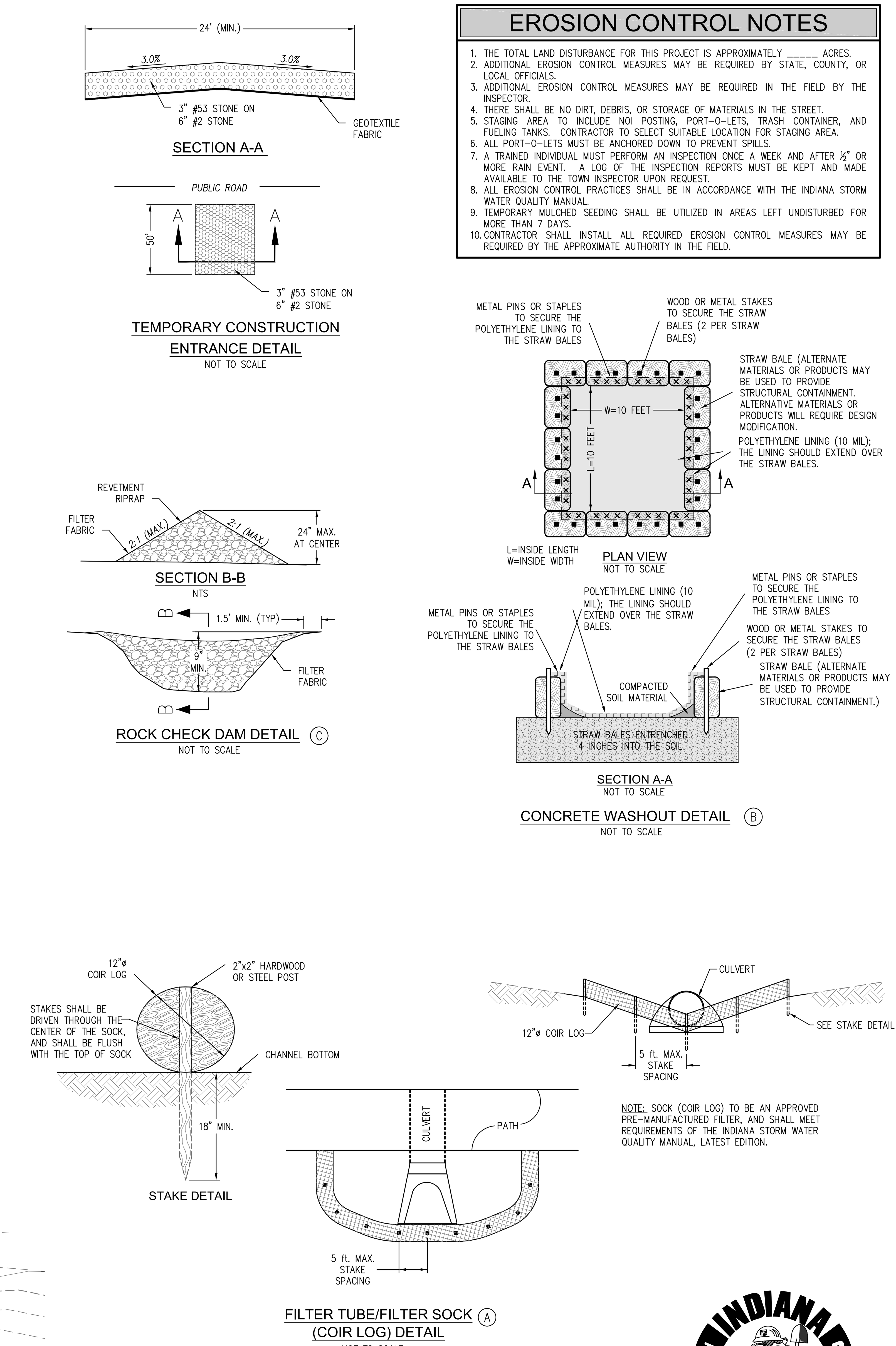


EROSION CONTROL LEGEND

- MULCHED SEEDING
- EROSION CONTROL BLANKET (NORTH AMERICAN GREEN SC-150 OR EQUAL) AND MULCHED SEEDING
- CONSTRUCTION ENTRANCE (SEE DETAIL-THIS SHEET)
- EXISTING CONTOURS
- PROPOSED CONTOURS
- SILT FENCE SLOPE CHECK (NUTEC 3 NWS-6 OR APPROVED EQUAL)
- CONSTRUCTION LIMITS
- (A) FILTER TUBE/COIR LOG (SEE DETAIL-THIS SHEET)
- (B) CONCRETE WASHOUT AREA (SEE DETAIL-THIS SHEET)
- (C) ROCK CHECK DAM (SEE DETAIL-THIS SHEET)

EROSION CONTROL NOTES

1. THE TOTAL LAND DISTURBANCE FOR THIS PROJECT IS APPROXIMATELY ______ ACRES.
2. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED BY STATE, COUNTY, OR LOCAL OFFICIALS.
3. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED IN THE FIELD BY THE INSPECTOR.
4. THERE SHALL BE NO DIRT, DEBRIS, OR STORAGE OF MATERIALS IN THE STREET.
5. STAGING AREA TO INCLUDE NOI POSTING, PORT-O-LETS, TRASH CONTAINER, AND FUELING TANKS. CONTRACTOR TO SELECT SUITABLE LOCATION FOR STAGING AREA.
6. ALL PORT-O-LETS MUST BE ANCHORED DOWN TO PREVENT SPILLS.
7. A TRAINED INDIVIDUAL MUST PERFORM AN INSPECTION ONCE A WEEK AND AFTER ½" OR MORE RAIN EVENT. A LOG OF THE INSPECTION REPORTS MUST BE KEPT AND MADE AVAILABLE TO THE TOWN INSPECTOR UPON REQUEST.
8. ALL EROSION CONTROL PRACTICES SHALL BE IN ACCORDANCE WITH THE INDIANA STORM WATER QUALITY MANUAL.
9. TEMPORARY MULCHED SEEDING SHALL BE UTILIZED IN AREAS LEFT UNDISTURBED FOR MORE THAN 7 DAYS.
10. CONTRACTOR SHALL INSTALL ALL REQUIRED EROSION CONTROL MEASURES MAY BE REQUIRED BY THE APPROXIMATE AUTHORITY IN THE FIELD.



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

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

INDIANA 811 Know what's below. Call before you dig.

EROSION CONTROL PLAN

HURRICANE INDUSTRIAL PARK - LOT 11

CROSSROAD ENGINEERS, PC
TRANSPORTATION & DEVELOPMENT CONSULTANTS
3417 SHERMAN DRIVE
BEECH GROVE, IN 46107
(317) 780-1555
CROSSROADENGINEERS.COM

JOB No.	.	DRAWN	LMC/KLF
CHECKED	TEN		
DATE	DECEMBER 5, 2019	DESIGNED	DMS
APPR.	GJI		

DEREK M. SNYDER REGISTERED NO. 11200008 STATE OF INDIANA PROFESSIONAL ENGINEER

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

DIRECTORY PATH : R:\Active\Avera Commercial\Hurricane BP - Lot 11\Design\CAD\Plans
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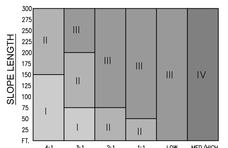
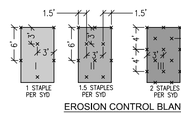
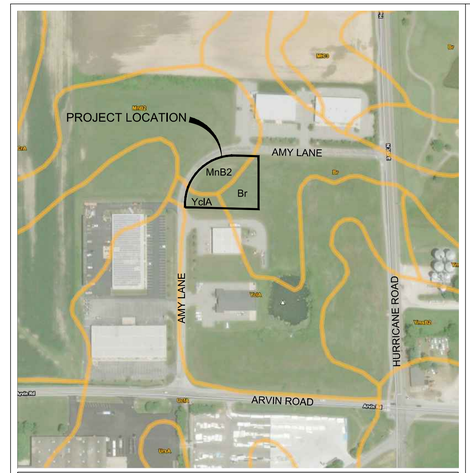
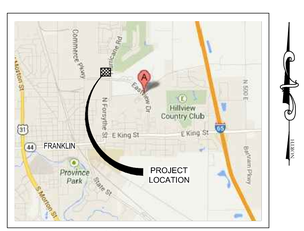
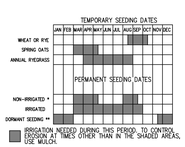
DATE/USER : 12/5/2019 9:12 AM / Klfogg











EROSION CONTROL PLAN INDEX
PLAN ELEMENTS

A1

RULE 5 EROSION CONTROL PLAN INDEX

ELEMENT	SHEET	ELEMENT	SHEET	ELEMENT	SHEET	ELEMENT	SHEET
A4	601	A19	601	B4	601 & 601	B12	601 & 601
A5	601	A21	600	B5	601 & 601	B13	601
A6	600	A22	600	B6	N/A	B14	601
A15	600	A23	600	B7	601 & 601		
A16	600	B2	601	B10	601 & 601		
A18	601	B3	601 & 601	B11	601 & 601		

A2 11 BY 17 INCH PLAT
The 11x17 inch Plat has been submitted to the City of Franklin Stormwater Department.

A3 PROJECT NARRATIVE
The project involves the construction of a ±9,607 square foot multi–tenant industrial building on Lot 11 of the Hurricane Industrial Park. The project is located at 1551 Amy Lane in the City of Franklin. A parking lot, drive aisles, and walks necessary for the development will be constructed as part of the project. Runoff will be conveyed to an existing wet detention pond via new rear and side yard swales. Water, sanitary, telephone, cable, gas and electric utilities shall serve the site as well. Construction is anticipated to begin in February 2020.

A4 VICINITY MAP
The Vicinity Map is located in the right half of the Stormwater Pollution Prevention Plan (this sheet).
Latitude N 39°29'44" Longitude W 86°02'38"

A5 LEGAL DESCRIPTION
The Legal Description of the project site is located in the lower right quadrant of the Stormwater Pollution Prevention Plan (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 600). Anticipated utilities and structures are depicted as well.

A7 HYDROLOGIC UNIT CODE
The Hydrologic Unit Code for the represented watershed of this project is: 05120204090040

A8 STATE AND/OR FEDERAL WATER QUALITY PERMITS
The IDEM Rule 5 Notice of Intent will be obtained and posted onsite prior to beginning land disturbance activities. No other State of Federal water quality permits are required for this project.

A9 STORMWATER DISCHARGE
Stormwater discharge shall leave the site via an existing roadside swale and proposed rear and side yard swales which convey runoff to the existing wet detention pond located southeast of the site within the Hurricane Business Park subdivision.

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 ultimate receiving water for this project is Young's Creek via the Roaring Run ditch.

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
By graphic plotting only, this tract of land hereon lies within Zone "X" (areas determined to be outside of the 0.2% annual chance floodplain) as plotted by hand on the Flood Insurance Rate Map (FIRM) for the City of Franklin, Johnson County, Indiana, Community Panel No. 18081 C 0231D, which bears effective date of 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
Qpre Max. (10 year) = 1.48 cfs
Qpost Max. (10 year) = 5.48 cfs

A15 ADJACENT LANDUSE
All adjacent land uses are light industrial.

A16 DISTURBED AREAS
The construction limits (boundary of disturbed area) are shown on the Erosion Control Plan (Sheet 600).

A17 EXISTING VEGETATIVE COVER
The existing site is a vacant, grass covered industrial subdivision lot.

A18 SOILS MAP AND DESCRIPTIONS
The soils map and all pertinent soil type information are located on the upper right quadrant of the Stormwater Pollution Prevention Plan (this sheet).

A19 PROPOSED STORMWATER SYSTEMS
The proposed stormwater system sizes and dimensions are labeled on the Erosion Control Plan (Sheet 600).

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 600). The proposed detention shall be used as a borrow area 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 600).

A23 PROPOSED SITE TOPOGRAPHY
Proposed one–foot contours are shown on the Erosion Control Plan (Sheet 600).

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 Stormwater Pollution Prevention Plan (this sheet).

B3 CONSTRUCTION ENTRANCE
The construction entrance shall be installed near the northeast corner of the site off of Amy Lane. Specifications and details are located on the Erosion Control Plan and Stormwater Pollution Prevention Plans (Sheets 600–601).

B4 SEDIMENT CONTROL MEASURES FOR SHEET FLOW AREAS
Sediment Control measures for Sheet flow areas are shown on the Erosion Control Plan (Sheet 600). Specifications and details are located on the Erosion Control Plan and Stormwater Pollution Prevention Plan (Sheets 600–601).

B5 SEDIMENT CONTROL MEASURES FOR CONCENTRATED FLOW AREAS
Sediment Control measures for concentrated flow areas are shown on the Erosion Control Plan (Sheet 600). Specifications and details are located on the Erosion Control Plan and Stormwater Pollution Prevention Plan (Sheets 600–601).

B6 STORM SEWER INLET PROTECTION MEASURES
No storm sewer inlet protection measures are necessary for this project.

B7 RUNOFF CONTROL MEASURES
Runoff control measures are shown on the Erosion Control Plan (Sheet 600). Specifications and details are located on the Erosion Control Plan and Stormwater Pollution Prevention Plan (Sheets 600–601).

B8 STORMWATER OUTLET PROTECTION MEASURES
No stormwater outlet protection measures are necessary for this project.

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 600) and associated details/specifications are shown on the Erosion Control Plan and Stormwater Pollution Prevention Plan (Sheets 600–601).

B11 TEMPORARY SURFACE STABILIZATION
Temporary surface stabilization methods are shown on the Erosion Control Plan (Sheet 600) and detailed on the Stormwater Pollution Prevention Plan (this sheet).

B12 PERMANENT SURFACE STABILIZATION
Permanent surface stabilization methods are shown on the Erosion Control Plan (Sheet 600) and detailed on the Stormwater Pollution Prevention Plan (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). Disposable absorbent spill pads are not acceptable as guards for pervious surfaces. 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 of the Stormwater Pollution Prevention Plan (this sheet).

B15 EROSION & SEDIMENT CONTROL MEASURES FOR INDIVIDUAL BUILDING LOTS
Not applicable as this site will be constructed as one lot/development.

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

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

C2 STORMWATER QUALITY MEASURE IMPLEMENTATION
No stormwater quality measures are implemented by construction of the site improvements since the existing wet detention pond provides stormwater quality for the entire subdivision.

C3 PROPOSED POST CONSTRUCTION STORMWATER QUALITY MEASURES
Post construction stormwater quality measures shall consist of the existing wet detention pond.

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 existing wet detention pond and the outlet control structure.

C5 MAINTENANCE GUIDELINES OF POST CONSTRUCTION STORMWATER QUALITY MEASURES
The existing wet detention pond and outlet structure shall be inspected quarterly and after major rain events for any blockages in accordance with subdivision covenants and restrictions. 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.

MONITORING AND MAINTENANCE GUIDELINES

GRAVEL CONSTRUCTION DRIVE AND PARKING AREA:
- A. Inspect daily and after each storm event. Immediately remove mud and sediment tracked or washed onto public roads.
- B. Top dress with clean aggregate as needed. Reshape pad as needed for drainage and runoff control.
- C. Flushing should only be used if the water can be conveyed into a sediment trap or basin.

TOPSOIL:
- A. Inspect daily until vegetation is established.
- B. Check for erosion or damage of newly spread topsoil and repair immediately.

TEMPORARY AND PERMANENT SEEDING:
- A. Inspect seeding within 24 hours of each rain event and at least once every seven calendar days until vegetation is established.
- B. Check for erosion or movement of mulch and repair immediately.
- C. Plan to add fertilizer the following growing season according to soil test recommendations.
- D. Repair damaged, bare, or sparse areas by filling any gullies, re–fertilizing, over– or re–seeding, and mulching.
- E. 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.
- F. If vegetation fails to grow, consider soil testing to determine acidity or nutrient deficiency problems.
- G. If additional fertilization is needed to get a satisfactory stand, do so according to soil test recommendations.
- H. Reference INDOT Specification 621.05.

MULCHING:
- A. Inspect within 24 hours of each rain event to check for movement of mulch or for erosion.
- B. If washout, breakage, or erosion is present, repair damage areas, re–seed, apply new mulch, and anchor mulch in place.
- C. Continue inspections until vegetation is firmly established.
- D. Reference INDOT Specification 621.05.

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

EROSION CONTROL BLANKET:
- A. Inspect within 24 hours of each rain event and at least once every seven calendar days. Check for erosion or displacement of the blanket.
- B. If any area shows erosion, pull back that portion of the blanket covering the eroded area, add soil and tamp, re–seed the area, and re–lay and staple the blanket.
- C. After vegetative establishment, check the treated area periodically.

SILT FENCE:
- A. Inspect within 24 hours of each rain event and at least once every seven calendar days.
- 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.

FILTER TUBE/FILTER SOCK (COIR LOG):
- A. Inspect within 24 hours of a rain event and at least once every seven calendar days.
- B. Remove accumulated sediment when it reaches one–quarter the height of the filter sock.
- C. Inspect to ensure the sock is maintaining its integretiy and producing adequate flow.
- D. Repair eroded and damaged areas.
- E. If ponding is excessive, remove sock and either reconstructed or new product installed.
- F. Reseed, if applicable.

ROCK CHECK DAM:
- A. Inspect within 24 hours of each rain event and at least once every seven calendar days.
- B. If significant erosion occurs between dams, install and erosion–resistant liner in that portion of the ditch.
- C. Remove accumulated sediment when it reaches one–half the height of the dam to maintain ditch capacity, allow drainage through the dam, and prevent large flow from displacing sediment.
- D. Add riprap and aggregate as needed to maintain design height and cross section of the dams.
- E. When dams are no longer needed, remove the riprap and aggregate and stabilize the ditch, using an erosion–resistant lining if necessary.

CONCRETE WASHOUT:
- A. Concrete washout area shall be installed prior to any concrete placement on site.
- B. Signs shall be placed at the construction entrance, at the washout area, and elsewhere as necessary to clearly indicate the location of the concrete washout area to operators of concrete trucks and pump rigs.
- C. The concrete washout area shall be repaired and enlarged or cleaned out as necessary to maintain capacity for wasted concrete.
- D. At the end of construction, all concrete shall be removed from the site and disposed of at an approved waste site.
- E. When the concrete washout area is removed, the disturbed area shall be seeded and mulched or otherwise stabilized in a manner approved by the inspector.

CONSTRUCTION SEQUENCE & SCHEDULE OF EROSION CONTROL IMPLEMENTATION

1. Schedule a Rule 5 Pre–Construction Meeting with the City of Franklin MS4 Coordinator and the City of Franklin Engineering Department at least 48 hours prior to start of work.
2. Install silt fence per the Erosion Control Plan (Sheet 600) before any land disturbing activity begins.
3. Install temporary construction entrance in accordance with the details and specifications on the Erosion Control Plan and Stormwater Pollution Prevention Plan (Sheets 600–601). The construction entrance shall remain in place until the completion of all earthwork operations.
4. Strip topsoil and stockpile onsite for re–use.
   Begin earthwork operations and install rear and side yard swales. Install coir logs/filter tubes and rock check dams in swales in accordance with the details and specifications on the Erosion Control Plan and Stormwater Pollution Prevention Plan (Sheets 600–601). Coir logs shall remain in place during all fill operations. 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.
5. Install concrete washout per the detail on the Erosion Control Plan (Sheet 600). Concrete washout shall remain in place until all concrete work is complete.
6. Construct parking lots, sidewalks, and other site improvements. Remove concrete washout areas upon completion of concrete placement.
7. Remove and dispose of all trash from the site.
8. Final grade site utilizing stockpiled topsoil and install all permanent surface stabilization features including seeding, erosion control blankets, sod, and plantings. All erosion control blankets shall be installed per manufacturers recommendations as soon as final grading is complete. Install permanent erosion control measures (i.e. rip rap) as soon as final grading is complete.
9. Final paving operations. All temporary erosion control measures, except those specified for removal in the sequences above, shall remain in place until vegetation is secure.

SLOPE GRADIENT

EROSION CONTROL BLANKET STAPLE PATTERN DETAIL

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. Soil has limitations for building sites and must be artificially drained and protected from flooding.

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.Soil has limitations for building sites and must be artificially drained and protected from flooding.

CROSBY SILT LOAM, FINE-LOAMY SUBSOIL-URBAN LAND COMPLEX (YclA)
This nearly level soil is in water–lain moraines, ground moraines, or recessional moraines.
Slopes are 0 to 2 percent. Runoff is medium. Land is somewhat poorly drained.

SOIL MAP AND DESCRIPTION
NOT TO SCALE

LEGAL DESCRIPTION

PER INSTR. #2009–014245
LOT 11 IN HURRICANE INDUSTRIAL PARK, SECTION 3, AS PER PLAT THEREOF, RECORDED DECEMBER 14, 2005, IN PLAT BOOK D, PAGE 619 A&B, AS INSTRUMENT NO. 2005–034659 IN THE OFFICE OF THE RECORDER OF JOHNSON COUNTY, INDIANA.

FLOODPLAIN INFORMATION

BY GRAPHIC PLOTTING ONLY, THIS TRACT OF LAND DESCRIBED HEREON LIES WITHIN ZONE 'X' (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AND IS NOT IN A SPECIAL FLOOD HAZARD AREA AS PLOTTED ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP FOR JOHNSON COUNTY, INDIANA, COMMUNITY PANEL NO. 18081C0231D, WHICH BEARS AN EFFECTIVE DATE OF AUGUST 02, 2007.

811
Know what's below.
Call before you dig.

VICINITY MAP
NOT TO SCALE

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.

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.

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

	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

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STORMWATER POLLUTION PREVENTION PLAN
HURRICANE INDUSTRIAL PARK - LOT 11

JOB No. .
DATE DECEMBER 5, 2019
DRAWN LMC/KLF
DESIGNED DMS
CHECKED TEN
APPR. GJI

SHEET 601

DEREK M. SNYDER
REGISTERED
NO. 11200008
STATE OF INDIANA
PROFESSIONAL ENGINEER

REVISIONS

NO.	DATE	BY	APPR.
9			
8			
7			
6			
5			
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SHEET 601

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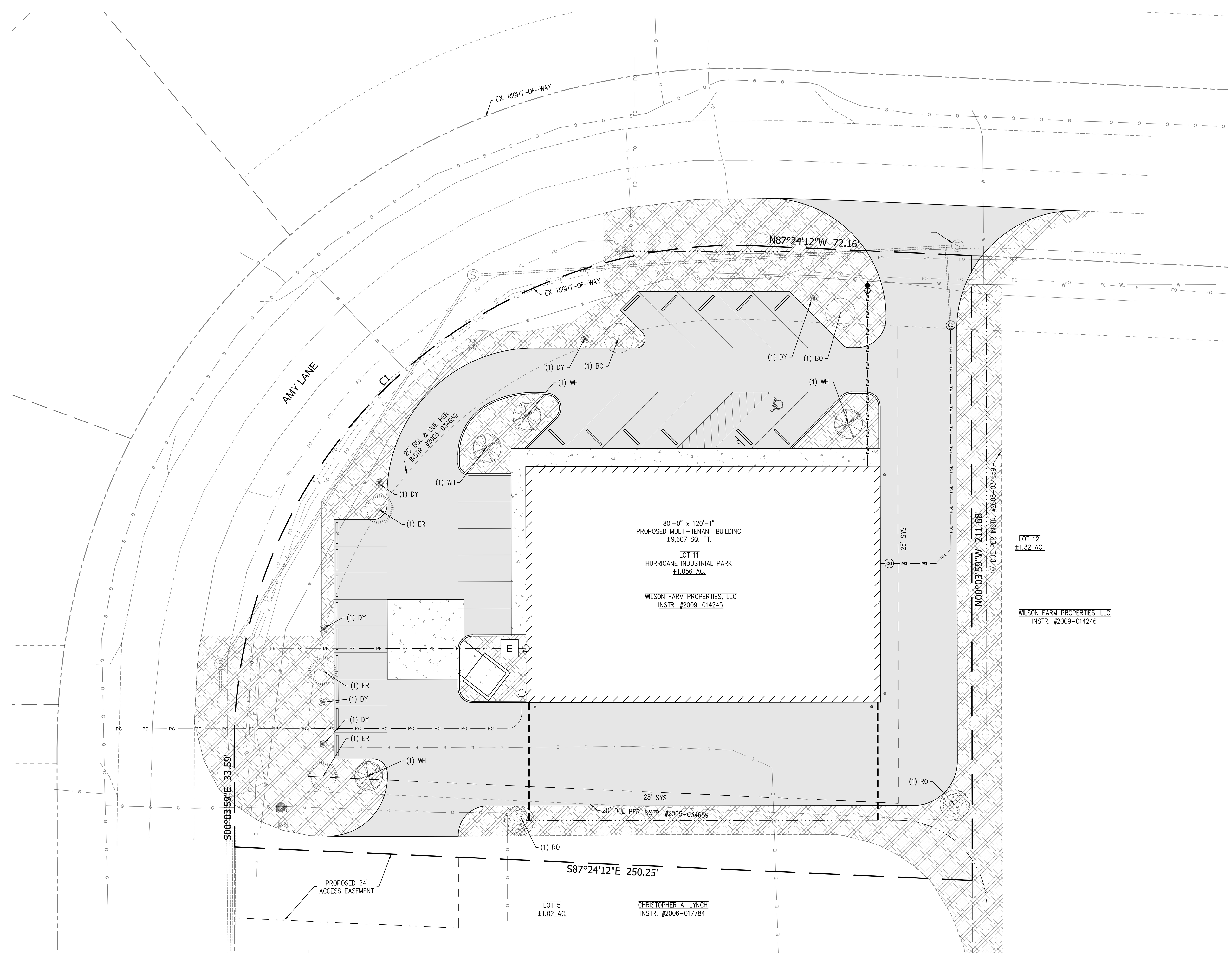


Boundary Curve Table				
Curve #	Length	Radius	Chord Direction	Chord Length
C1	274.94'	170.00'	S46°15'54"W	245.94'

SCALE: 1" = 20'

LANDSCAPE NOTES

1. CONTRACTOR SHALL REMOVE ALL EXISTING VEGETATION AND STRIP TOPSOIL FOR STOCKPILING. CONTRACTOR SHALL LEAVE ALL PROPOSED LANDSCAPE AREAS SIX INCHES BELOW FINAL GRADE AND SPREAD A LIGHTLY COMPACTED SIX INCH LIFT OF TOPSOIL IN ALL LANDSCAPE AREAS – BRINGING THESE AREAS TO TOP OF CURB/FINAL GRADE (COMPACTED).
2. CONTRACTOR SHALL INSTALL THREE INCHES OF SHREDDED HARDWOOD BARK MULCH AS A TOP DRESSING FOR ALL TREE RINGS.
3. PLANT MATERIALS FROM THE CITY OF FRANKLIN'S "QUALIFYING BROAD LEAF/DECIDUOUS TREES" LIST MAY BE SUBSTITUTED FOR THOSE SHOWN HEREON WITH PRIOR APPROVAL OF THE ENGINEER.
4. PLANTS MAY BE INSPECTED AND APPROVED OR REJECTED ON THE JOBSITE BY THE OWNER OR THE OWNER'S REPRESENTATIVE.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR THE LANDSCAPE MAINTENANCE OF THIS PROJECT UNTIL FINAL ACCEPTANCE. TURF AREAS WILL NOT BE ACCEPTED UNTIL THEY AREA AT A MINIMUM OF 1-1/2 INCHES TALL, AND NO BARE AREAS LARGER THAN 12 SQUARE INCHES.
6. TREES SHALL BE PLANTED AT LEAST TWO AND ONE-HALF FEET (2'-6") FROM SIDEWALK OR CURB EDGE.

LANDSCAPE LEGEND

SHRUBS

DY — (6) TOTAL – 18" MIN. HEIGHT
TAXUS X M 'DENSIFORMIS'
DENSE SPREADING YEW

TREES

WH — (4) TOTAL – 2 ½" CALIPER
CRATAEGUS PHAENOPYRUM
WASHINGTON HAWTHORNE

ER — (3) TOTAL – 2 ½" CALIPER
CERCIS CANADENSIS
EASTERN REDBUD

RO — (2) TOTAL – 2 ½" CALIPER
QUERCUS BOREALIS
RED OAK

BO — (2) TOTAL – 2 ½" CALIPER
QUERCUS MACROCARPA
BURR OAK

GROUNDCOVER

SEED AND MULCH ±16,259 SQ. FT.
LOW MAINTENANCE MIX AS AVAILABLE FROM INDIANA SEED SOLUTIONS 65% TALL FESCUE, 25% PRG, 10% CR FESCUE

PARKING LOT PERIMETER LANDSCAPING
(1 DECIDUOUS/EVERGREEN TREE & 1 SHRUB PER 80 LINEAR FEET OF LANDSCAPE AREA)

LENGTH	TREES REQUIRED	TREES PROVIDED	SHRUBS REQUIRED	SHRUBS PROVIDED
381'	5	5	5	6

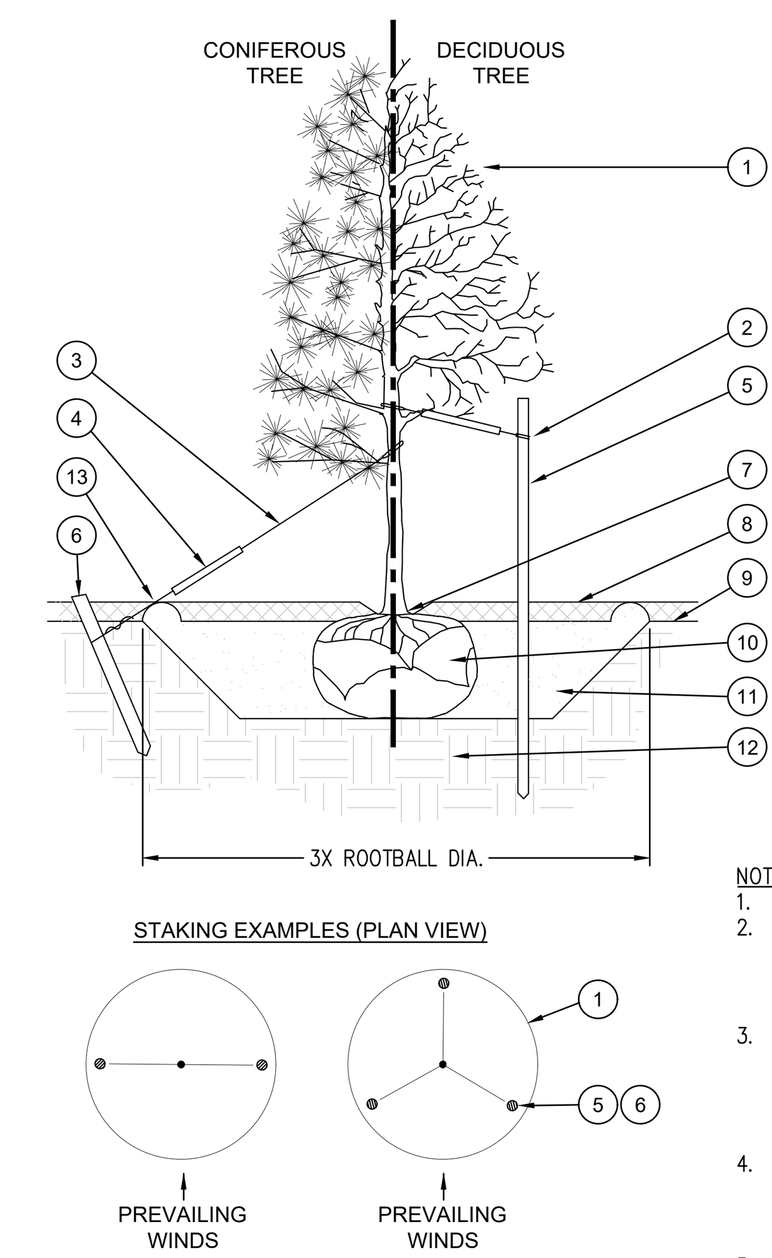
INTERIOR PARKING LOT LANDSCAPING
(5% MIN. INTERIOR PARKING LOT LANDSCAPING W/1 DECIDUOUS TREE PER 300 S.F. LANDSCAPE AREA REQUIRED)

PAVED SURFACE AREA	INTERIOR LANDSCAPE PROVIDED	TREES REQUIRED	TREES PROVIDED
21,076 S.F.	1,380 S.F. (6.6%)	4	4

PROPERTY INTERIOR LANDSCAPING
(1 DECIDUOUS OR EVERGREEN TREE PER 5,000 S.F. YARD AREA REQUIRED)

REQUIRED OPEN SPACE	YARD AREA	TREES REQUIRED	TREES PROVIDED
11,503 S.F.	6,313 S.F.	2	2

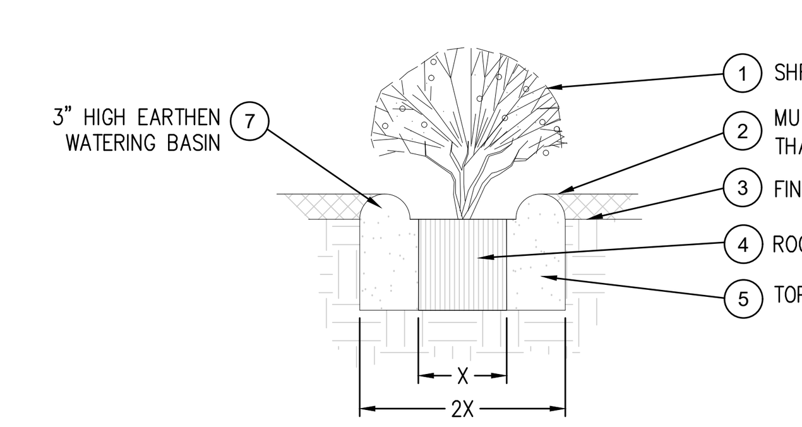
NOTE: OPEN SPACE CALCULATION BASED ON 75% MAX. LOT COVERAGE. YARD AREA CALCULATION BASED ON OPEN SPACE MINUS INTERIOR LANDSCAPE AND PERIMETER PARKING AREAS PER ORDINANCE.



1. TREE CANOPY.
2. NYLON TREE STRAPS AT ENDS OF WIRES – SECURE TO STAKE OR DEADMAN WITH NAILS.
3. 12 GAUGE GALVANIZED WIRE. SECURE TO TRUNK JUST ABOVE LOWEST MAJOR BRANCHES.
4. 24" X 3/4" P.V.C. MARKERS OVER WIRES.
5. PRESSURE-TREATED WOOD STAKE, 2" DIA. EXTEND STAKES 12" MIN. INTO UNDISTURBED SOIL.
6. PRESSURE-TREATED WOOD DEADMAN, TWO PER TREE (MIN.). BURY OUTSIDE OF PLANTING PIT AND 18" MIN. INTO UNDISTURBED SOIL.
7. TRUNK FLARE.
8. MULCH, TYPE AND DEPTH PER LANDSCAPE PLANS. DO NOT PLACE MULCH WITHIN 6" OF TRUNK.
9. FINISH GRADE.
10. ROOT BALL.
11. BACKFILL
12. UNDISTURBED NATIVE SOIL.
13. 4" HIGH EARTHEN WATERING BASIN.

NOTES:
1. SCARIFY SIDES OF PLANTING PIT PRIOR TO SETTING TREE.
2. REMOVE EXCESS SOIL APPLIED ON TOP OF THE ROOTBALL THAT COVERS THE ROOT FLARE. THE PLANTING HOLE DEPTH SHALL BE SUCH THAT THE ROOTBALL RESTS ON UNDISTURBED SOIL, AND THE ROOT FLARE IS 3"-5" ABOVE FINISH GRADE.
3. CUT OFF BOTTOM 1/3 OF WIRE BASKET BEFORE PLACING TREE IN HOLE, CUT OFF AND REMOVE REMAINDER OF BASKET AFTER TREE IS SET IN HOLE, REMOVE ALL NYLON TIES, TWINE, ROPE, AND OTHER PACKING MATERIAL. REMOVE AS MUCH BURLAP FROM AROUND ROOTBALL AS IS PRACTICAL.
4. TREE WRAP IS NOT TO BE USED ON ANY NEW PLANTINGS, EXCEPT IN LATE FALL PLANTING SITUATIONS, AND ONLY THEN AFTER CONSULTATION WITH THE LANDSCAPE ARCHITECT. WHEN WRAPPING TREE, WRAP FROM TRUNK FLARE TO LOWEST MAJOR BRANCH.
5. REMOVE ALL NURSERY STAKES AFTER PLANTING.
6. FOR TREES OVER 3" CALIPER, USE THREE STAKES OR DEADMEN (AS APPROPRIATE), SPACED EVENLY AROUND TREE.

TREE PLANTING DETAILS
NOT TO SCALE



1. SHRUB
2. MULCH, TYPE AND DEPTH PER PLANS. PLACE NO MORE THAN 1" OF MULCH WITHIN 6" OF PLANT CENTER
3. FINISH GRADE
4. ROOT BALL
5. TOPSOIL

PROPOSED LEGEND

- PROPERTY LINE
- SECTION LINE
- SETBACK LINE
- EASEMENT LINE
- DITCH LINE
- SANITARY SEWER LATERAL WITH CLEANOUT
- ROOF DRAIN
- ELECTRIC LINE
- WATER SERVICE LINE
- GAS LINE
- WATER VALVE
- WATER VALVE
- ELECTRIC TRANSFORMER
- SIGN

INDIANA 811 Know what's below. Call before you dig

DIRECTORY PATH : R:\Active\Aveta Commercial\Hurricane BP - Lot 11\Design\CAD\Plans
FILENAME : 700 LANDSCAPE PLAN.dwg
DATE/USER : 12/5/2019 10:36 AM / Kdigg

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BEECH GROVE, IN 46107
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SHEET 700

LANDSCAPE PLAN

HURRICANE INDUSTRIAL PARK - LOT 11

JOB No.	.	DRAWN	LMC/KLF	CHECKED	TEN
DATE	DECEMBER 5, 2019	DESIGNED	DMS	APPR.	GJI

DEREK M. SNYDER REGISTERED NO. 11200008 STATE OF INDIANA PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS	BY	APPR.
1				
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SHEET 700

MISCELLANEOUS DETAILS
HURRICANE INDUSTRIAL PARK - LOT 11
CROSSROAD ENGINEERS, PC
TRANSPORTATION & DEVELOPMENT CONSULTANTS
SHEET 800
JOB No.
DATE DECEMBER 5, 2019
DRAWN LMC/KLF
CHECKED TEN
DESIGNED DMS
APPR. GJI
DEREK M. SNYDER
REGISTERED
NO. 11200008
STATE OF INDIANA
PROFESSIONAL ENGINEER
REVISIONS
NO.
DATE
BY
APPR.
STRAIGHT CONCRETE CURB
NOT TO SCALE
BACK OF CURB GRADES TO THIS POINT
LANDSCAPE AREA
TOP SOIL
FACE OF CURB GRADES TO THIS POINT
ASPHALT PAVEMENT SECTION
CONCRETE SIDEWALK
NOT TO SCALE
NOTE:
JOINTS SHALL BE CUT WITH A JOINTER HAVING A RADIUS OF 1/4" AND FILLED WITH JOINT FILLER.
6'-0" BETWEEN TRANSVERSE JOINTS
1/2" PREFORMED JOINT FILLER
TRANSVERSE JOINT
48' BETWEEN EXPANSION JOINTS (MAX.)
MONOLITHIC CURB AND SIDEWALK
NOT TO SCALE
LONGITUDINAL DUMMY JOINT
CURB FLUSH W/PAVEMENT
2% MAX.
½" PREFORMED JOINT FILLER WHEN ADJACENT TO BUILDING
ASPHALT PAVEMENT SECTION
TYPICAL CONCRETE PAVEMENT SECTION
NOT TO SCALE
6" PORTLAND CEMENT CONCRETE PAVEMENT
7" COMPACTED AGGREGATE #53 BASE
SUBGRADE COMPACTED TO 95% MODIFIED PROCTOR
TYPICAL ASPHALT PAVEMENT SECTION
NOT TO SCALE
1 ½" HMA SURFACE, TYPE 'B', 9.5 mm
3 ½" HMA INTERMEDIATE, TYPE 'B', 19.0 mm
8" COMPACTED AGGREGATE #53 BASE
SUBGRADE COMPACTED TO 95% MODIFIED PROCTOR
PIPE BOLLARD DETAIL
NOT TO SCALE
6"Ø STEEL PIPE FILLED WITH CONCRETE
SECTION PAVEMENT
CONCRETE
CONCRETE PARKING BARRIER
NOT TO SCALE
3/4" DIA. HOLES FOR 1/2" DIA. X 18" PINS DRIVEN FLUSH WITH TOP
EDGE OF SIDEWALK RETAINING WALL OR STRIPED LINE
PRECAST CONCRETE PARKING BUMPER REINFORCED W/2 #3 BARS
NOTE:
PARKING BARRIERS SHALL BE OF THE DIMENSIONS SHOWN ON THE PLANS. THE BARRIERS SHALL BE CAST AND TESTED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF 615.03 OF THE INDOT STANDARD SPECIFICATIONS EXCEPT THE STRENGTH SHALL BE DETERMINED BY CONCRETE CORES TAKEN FROM THE FINISHED PRODUCT. AT LEAST 2 CONCRETE CORES WILL BE TAKEN FROM EACH UNIT AND THE AVERAGE STRENGTH OF THE UNIT SHALL BE AT LEAST 28 MPa (4000 PSI) WITH NO INDIVIDUAL CORE STRENGTH LESS THAN 25 MPa (3600 PSI).
FLEXIBLE PIPE BEDDING DETAIL
PVC AND HDPE PIPE
NOT TO SCALE
OUTSIDE 5' OF STREETS, WALKS AND CURBS BACKFILL WITH CLEAN FILL MATERIAL FREE OF ROCKS LARGER THAN 6" DIAMETER OR EXTRANEOUS MATERIAL.
WITHIN 5' OF STREETS, WALKS AND CURBS BACKFILL WITH B-BORROW OR EQUIVALENT. (MECHANICAL COMPACTION TO 95% PROCTOR DENSITY.)
MIN. 1.25 O.D. + 12"
12" MIN.
#8 CRUSHED STONE OR #8 FRACTURED FACE AGGREGATE, HAND TAMPED OR WALKED IN TO 1/2 O.D.
4" MIN. (BELOW THE BELL)
#8 CRUSHED STONE OR #8 FRACTURED FACE AGGREGATE, BELL HOLE EXCAVATED.
PIPE SIZE | 8" TO 15" | 18" & OVER
BEDDING BELOW THE PIPE BELL | O.D. / 4 MIN. = 4" | O.D. / 4 MAX. = 8"
CLEANOUT DETAIL
NOT TO SCALE
EAST JORDAN IRONWORKS MODEL 1755 CASTING, LETTERED "SEWER"
MINIMUM 1" CLEARANCE FROM TOP OF CAP TO BOTTOM OF CASTING
EXPANSION JOINT AROUND LATERAL
FINAL GRADE
6" PVC CAP
36" x 36" x 6" CONCRETE APRON WITH FIBERMESH REINFORCEMENT.
PLACE MINIMUM 8" DIAMETER HDPE PIPE AROUND LATERAL PRIOR TO BACKFILLING. HDPE PIPE TO EXTEND INTO CONCRETE.
3-½"x4" SLITS TO BE CUT INTO HDPE IMMEDIATELY ABOVE CONCRETE TO ALLOW DRAINAGE.
#8 STONE BELOW CONCRETE APRON TO PREVENT SETTLING. EXTEND TO UNDISTURBED EARTH.
6" PVC PIPE (6" X 6" X 6") TEE-WYE
MINIMUM 4" CONCRETE CAP FROM THE SPRING LINE TO 6" OVER PIPE, NOT TO EXTEND BEYOND FIRST PIPE JOINT OF WYE. MINIMUM CONCRETE STRENGTH OF 3500 PSI, 28 DAY COMPRESSIVE STRENGTH.
6" SEWER LATERAL
FLOW
TYPICAL SWALE SECTION
NOT TO SCALE
EROSION CONTROL BLANKET & SEEDING PER PLANS
FINISHED GRADE PER PLANS
WIDTH VARIES
MATCH EX. GRADE
3:1 MAX.
SWALE ELEVATIONS PER GRADING PLAN
DOWNSPOUT DETAIL
NOT TO SCALE
HDPE Downspout Adapter
Grade
6" PVC SDR-40 PIPE SLIPPED OVER 4" PVC THEN FILLED WITH SAND.
PVC PIPE
PAVEMENT MARKING-HANDICAP SYMBOL
NOT TO SCALE
NOTES:
1. ALL MARKINGS TO BE 4 INCHES, SOLID BLUE PAINT
2. THE HANDICAP PARKING SYMBOL SHALL MEET CURRENT A.D.A. REQUIREMENTS
SINGLE WATER SERVICE CONNECTION
N.T.S.
DISTANCE VARIES ACCORDING TO RIGHT-OF-WAY AND COMPANY PREFERENCE
CURB LINE
METER BOX COVER W/LID & LID BOLT W/TOUCH PAD SET FLUSH TO FINISHED GRADE
METER WITH TOUCH READ, OR RF UNIT
SIDEWALK
GRADE LINE
2'-0" (MIN.)
FLOOR JOIST
METER PIT (SEE NOTES 2 & 3)
SHUT OFF VALVE
METER SET OR YOKE PER LOCAL DISTRICT REQUIREMENTS (SEE SPECIFICATION 01011)
CLEARANCE SHALL BE EQUAL DISTANCE EACH SIDE
4"Hx3"W NOTCH IN METER PIT
PE STIFFENER
TRACER WIRE
ALTERNATE METER SUPPORT BY STRAPPING SETTER/YOKE TO (2) #6 REBAR.
PE PIPE
MINIMUM COVER AS SPECIFIED
OPTIONAL DUAL CHECK VALVE (BY CUSTOMER)
MAIN SHUTOFF VALVE (BY CUSTOMER)
INSIDE BUILDING WALL
BASEMENT FLOOR
CORPORATION STOP WITH ELECTRIC ISOLATION (SEE NOTE 1)
WATER MAIN
METER CHAMBER TO BE SET ON A FLAT BRICK, STONE, OR UNDISTURBED SOIL
COUPLING
1/2" GAL. PIPE METER SUPPORTS
NEW OR EXISTING SERVICE LINE (BY CUSTOMER)
NOTES:
1. CORPORATION STOP WITH STRAIGHT COUPLING NUT. SERVICE SADDLES WILL BE USED FOR ALL TAPS IN A/C, PVC OR CONCRETE MAINS. SIDEWALL FUSED SADDLES FOR ALL TAPS ON HDPE MAINS.
2. METER PITS PER SPECIFICATION 15200.
3. METER PIT LOCATION TO BE DETERMINED BY LOCAL AUTHORITY AND INAWC.
4. SERVICE LINE AND METER PIT OWNERSHIP VARIES BY LOCAL TARIFF.
5. CONNECTIONS BETWEEN PIPE LENGTHS SHALL BE COMPRESSION OR FLARE AND MAY DEPEND ON LOCAL PLUMBING REQUIREMENT.
STANDARD DETAIL
SINGLE WATER SERVICE
INDIANA AMERICAN WATER
ENGINEERING DEPARTMENT
153 N. EMERSON AVENUE
GREENWOOD, INDIANA 46143
DATE: JANUARY, 2018
DRAWN BY: S. FORD
LATEST REV: JANUARY, 2018
APP'D BY: E.N.
TRASH DUMPSTER PLAN
NOT TO SCALE
CONC. FILLED 6" STEEL PIPE BOLLARDS. SEE PIPE BOLLARD DETAIL. TYP. (4) PLACES
PROVIDES MEANS TO SECURE GATE IN OPEN POSITION
8" CONCRETE SLAB WITH 6x6 W2.1xW2.1 W.W.F. ON COMPACTED SUBGRADE
EQUAL
SLOPE 1/8"/FT.
TRASH ENCLOSURE DETAILS
NOT TO SCALE
WALL SECTION
NOT TO SCALE
4"x8"x6" SOLID CONCRETE CAP
METAL FLASHING WITH DRIP
CONT. 8" BOND BEAM WITH (2) #4 CONT. BARS.
NATURAL SPLIT FACE BLOCK
#4 BARS AT 48" O.C. FULL HEIGHT.
8" CONCRETE BLOCK WITH HORIZ. REINF. AT 16" O.C. VERTICALLY. GROUT ALL CORES SOLID.
½" EXP. JOINT MATERIAL CAULK WITH SEALANT.
MASON'S FLASHING WITH WEEP AT 24" O.C.
8" CONCRETE SLAB WITH 6x6 W2.1xW2.1 W.W.F. ON COMPACTED SUBGRADE. SLOPE SLAB FROM BACK TO FRONT OF DUMPSTER AT APPROX. ⅛" PER FOOT FOR DRAINAGE.
FINISH FLOOR ELEVATION = SEE PLANS
4" COMPACTED FILL
12" CONC. BLOCK CONT. CONCRETE WASH
COMPACTED BACKFILL
CONT. CONCRETE FOOTING
#4 BARS CONT. @ 12" O.C.
GATE ELEVATION
NOT TO SCALE
VARIES (SEE PLAN)
1"x6" PICKETS ANCHORED TO FRAME
CONC. CAP - CROWNED 1" ABOVE TOP OF PIPE
SHOP WELDED TS 2"x6"x3/16" FRAME (PAINT)
HINGE KNUCKLE AND PIN - (3) EACH SIDE MIN. REFER TO HINGE DETAIL 7/C9.0
ADJACENT WALL CONSTRUCTION
CONC. FILLED 10" STEEL PIPE GATE POST. EMBED 3'-0" BELOW GRADE MIN. IN 30"Ø CONC. FTG.
FINISH FLOOR OR GRADE
30"Ø CONCRETE PIPE FOOTING
PROVIDE A ¾"STL. SLEEVE & ½" STL. PIN LATCH & FLUSH BOLT
ELEVATION VIEW
NOT TO SCALE
SEE OTHER ELEVATIONS FOR MATERIALS
4"x8"x6" SOLID CONCRETE CAP
NATURAL SPLIT FACE BLOCK
FINISH GRADE ELEV. = 0'-0"
12" BLOCK FOUNDATION WALL
CONCRETE FOOTING
STEEL FRAME GATE. SEE GATE ELEVATION 6/C9.0.
ENLARGED HINGE DETAIL
NOT TO SCALE
FACE OF MASONRY JAMB.
CONC. FILLED 8" STEEL PIPE GATE POST. EMBED 6'-0" BELOW GRADE MIN. IN 30"Ø CONC. FTG.
SHOP FABRICATED ¾" PIPE HINGE KNUCKLE WITH HINGE PIN. SHOP WELD HALF OF KNUCKLE TO POST AND HALF TO FRAME (PAINT)
SHOP WELDED TS 2"x6"x3/16" FRAME (PAINT)
1"x6" VINYL PICKETS ANCHORED TO FRAME
DIRECTORY PATH : R:\Active\Avera Commercial\Hurricane BP - Lot 11\Design\CAD\Plans
FILENAME : 700 MISC DETAILS.dwg
DATE/USER : 12/4/2019 6:07 PM / Dsnyder
SHEET 800

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 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 REASONABLY FREE OF 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 ACHIEVE 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.

A. 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: WHITE, BLUE

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. ALL C-900 PVC WATER MAIN SHALL BE DR-14 CLASSIFICATION.

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.

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DATE/USER : 12/5/2019 8:44 AM / Dsnyder

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BEECH GROVE, IN 46107
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SHEET 900

SPECIFICATIONS

HURRICANE INDUSTRIAL PARK - LOT 11

JOB No. .
DATE DECEMBER 5, 2019
DRAWN LMC/KLF
DESIGNED DMS
CHECKED TEN
APPR. GJI

DEREK M. SNYDER
No. 11200008

NO.	DATE	REVISIONS	BY	APPR.
1				
2				
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SHEET 900