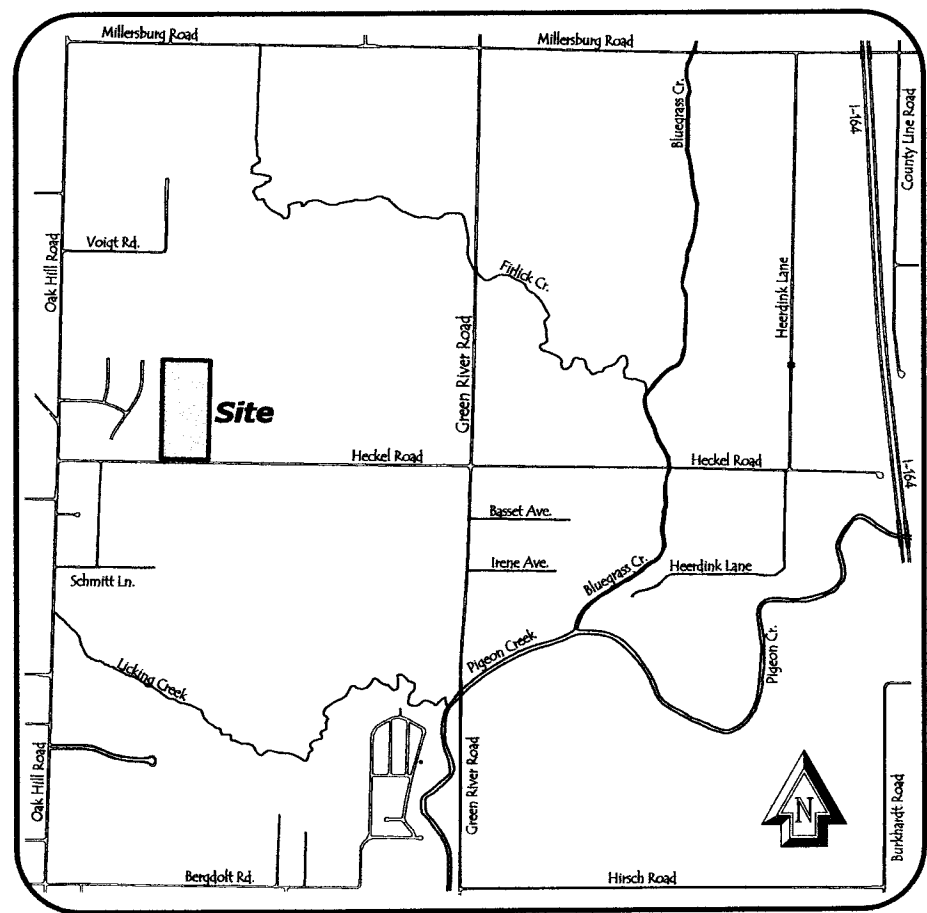


# CONSTRUCTION/STORMWATER POLLUTION PREVENTION PLAN (SWP3) NARRATIVE

A. CONSTRUCTION PLAN ELEMENTS	LOCATION
A1. PLAN INDEX SHOWING LOCATIONS OF REQUIRED ITEMS:	
A2. 11 BY 17-INCH PLAT SHOWING BUILDING LOT NUMBERS/BOUNDARIES AND ROAD LAYOUT/NAMES:	ATTACHMENTS
A3. NARRATIVE DESCRIBING NATURE AND PURPOSE:	THIS SHEET
A4. VICINITY MAP SHOWING PROJECT LOCATION:	THIS SHEET
A5. LEGAL DESCRIPTION OF THE PROJECT SITE:	ATTACHMENTS
A6. LOCATION OF ALL LOTS AND PROPOSED SITE IMPROVEMENTS:	SEE SHEET C-110
A7. HYDROLOGIC UNIT CODE (14 DIGIT):	THIS SHEET
A8. NOTATION OF ANY STATE OR FEDERAL WATER QUALITY PERMITS:	THIS SHEET
A9. SPECIFIC POINTS WHERE STORM WATER DISCHARGE WILL LEAVE THE SITE:	THIS SHEET
A10. LOCATIONS AND NAME OF ALL WETLANDS, LAKES AND WATERCOURSES ON AND ADJACENT TO THE SITE:	THIS SHEET & ATTACHMENTS
A11. IDENTIFICATION OF ALL RECEIVING WATERS:	THIS SHEET
A12. IDENTIFICATION OF POTENTIAL DISCHARGES TO GROUND WATER:	THIS SHEET
A13. 100 YEAR FLOODPLAINS, FLOODWAYS, AND FLOODWAY FRINGES:	THIS SHEET & ATTACHMENTS
A14. PRE-CONSTRUCTION AND POST CONSTRUCTION ESTIMATE OF PEAK DISCHARGE (10 YEAR EVENT):	THIS SHEET & ATTACHMENTS
A15. ADJACENT LAND USE, INCLUDING UPSTREAM WATERSHED:	THIS SHEET
A16. LOCATIONS AND APPROXIMATE BOUNDARIES OF ALL DISTURBED AREAS:	THIS SHEET & C-110
A17. IDENTIFICATION OF EXISTING VEGETATIVE COVER:	THIS SHEET
A18. SOILS MAP INCLUDING SOIL DESCRIPTIONS AND LIMITATIONS:	THIS SHEET & ATTACHMENTS
A19. LOCATIONS, SIZE AND DIMENSIONS OF PROPOSED-STORM WATER SYSTEMS:	SHEET C-110
A20. PLANS FOR ANY OFF-SITE CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT:	THIS SHEET
A21. LOCATIONS OF PROPOSED SOIL STOCKPILES AND/OR BORROW/ DISPOSAL AREAS:	THIS SHEET & C-110
A22. EXISTING SITE TOPOGRAPHY AT AN INTERVAL APPROPRIATE TO INDICATE DRAINAGE PATTERNS:	SHEET C-110
A23. PROPOSED FINAL TOPOGRAPHY AT AN INTERVAL APPROPRIATE TO INDICATE DRAINAGE PATTERNS:	SHEET C-110

B. STORMWATER POLLUTION PREVENTION PLAN:	LOCATION
B1. DESCRIPTION OF POTENTIAL SOURCES ASSOCIATED WITH CONSTRUCTION ACTIVITIES:	THIS SHEET
B2. SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTED RELATIVE TO LAND DISTURBING ACTIVITIES:	THIS SHEET
B3. STABLE CONSTRUCTION ENTRANCE LOCATIONS AND SPECIFICATIONS:	THIS SHEET
B4. SEDIMENT CONTROL MEASURES FOR SHEET FLOW AREAS:	THIS SHEET
B5. SEDIMENT CONTROL MEASURES FOR CONCENTRATED FLOW:	THIS SHEET
B6. STORM SEWER INLET PROTECTION MEASURE LOCATION AND SPECIFICATION:	THIS SHEET
B7. RUNOFF CONTROL MEASURES:	THIS SHEET
B8. STORMWATER OUTLET PROTECTION SPECIFICATIONS:	THIS SHEET
B9. GRADE STABILIZATION STRUCTURE LOCATIONS AND SPECIFICATIONS:	THIS SHEET
B10. LOCATION, DIMENSIONS, SPECIFICATION, AND CONSTRUCTION DETAILS OF EACH STORMWATER QUALITY MEASURE:	THIS SHEET
B11. TEMPORARY SURFACE STABILIZATION METHODS APPROPRIATE FOR EACH SEASON:	THIS SHEET
B12. PERMANENT SURFACE STABILIZATION SPECIFICATIONS:	THIS SHEET
B13. MATERIAL HANDLING AND SPILL PREVENTION:	THIS SHEET
B14. MONITORING AND MAINTENANCE GUIDELINES FOR POLLUTION PREVENTION MEASURES:	THIS SHEET
B15. EROSION & SEDIMENT CONTROL SPECIFICATIONS FOR INDIVIDUAL BUILDING LOTS:	THIS SHEET

C. POST CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN:	LOCATION
C1. DESCRIPTION OF POLLUTANTS AND THEIR SOURCES ASSOCIATED WITH THE PROPOSED LAND USE:	THIS SHEET
C2. SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTATION:	THIS SHEET
C3. DESCRIPTION OF PROPOSED POST CONSTRUCTION STORMWATER QUALITY MEASURES:	THIS SHEET
C4. LOCATION, DIMENSIONS, SPECIFICATIONS & CONSTRUCTION DETAILS OF EACH STORMWATER QUALITY MEASURE:	THIS SHEET & C-112
C5. DESCRIPTION OF MAINTENANCE GUIDELINES FOR PROPOSED POST CONSTRUCTION WATER QUALITY MEASURES:	THIS SHEET



**Location Map (Not to Scale)**

A. CONSTRUCTION PLAN ELEMENTS
A1. PLAN INDEX SHOWING LOCATIONS OF REQUIRED ITEMS:
A2. 11 BY 17-INCH PLAT SHOWING BUILDING LOT NUMBERS/BOUNDARIES AND ROAD LAYOUT/NAMES:
A3. NARRATIVE DESCRIBING NATURE AND PURPOSE:
A4. VICINITY MAP SHOWING PROJECT LOCATION:
A5. LEGAL DESCRIPTION OF THE PROJECT SITE:
A6. LOCATION OF ALL LOTS AND PROPOSED SITE IMPROVEMENTS:
A7. HYDROLOGIC UNIT CODE (14 DIGIT):
A8. NOTATION OF ANY STATE OR FEDERAL WATER QUALITY PERMITS:
A9. SPECIFIC POINTS WHERE STORM WATER DISCHARGE WILL LEAVE THE SITE:
A10. LOCATIONS AND NAME OF ALL WETLANDS, LAKES AND WATERCOURSES ON AND ADJACENT TO THE SITE:
A11. IDENTIFICATION OF ALL RECEIVING WATERS:
A12. IDENTIFICATION OF POTENTIAL DISCHARGES TO GROUND WATER:
A13. 100 YEAR FLOODPLAINS, FLOODWAYS, AND FLOODWAY FRINGES:
A14. PRE-CONSTRUCTION AND POST CONSTRUCTION ESTIMATE OF PEAK DISCHARGE (10 YEAR EVENT):
A15. ADJACENT LAND USE, INCLUDING UPSTREAM WATERSHED:
A16. LOCATIONS AND APPROXIMATE BOUNDARIES OF ALL DISTURBED AREAS:
A17. IDENTIFICATION OF EXISTING VEGETATIVE COVER:
A18. SOILS MAP INCLUDING SOIL DESCRIPTIONS AND LIMITATIONS:

SOILS RATINGS	
	Local Roads & Streets
He	Very limited
HoA	Very limited
HoB2	Very limited
HoC2	Very limited
Wa	Very limited
Zp	Very limited

A19. LOCATIONS, SIZE AND DIMENSIONS OF PROPOSED-STORM WATER SYSTEMS:
A20. PLANS FOR ANY OFF-SITE CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT:
A21. LOCATIONS OF PROPOSED SOIL STOCKPILES AND/OR BORROW/ DISPOSAL AREAS:
A22. EXISTING SITE TOPOGRAPHY AT AN INTERVAL APPROPRIATE TO INDICATE DRAINAGE PATTERNS:
A23. PROPOSED FINAL TOPOGRAPHY AT AN INTERVAL APPROPRIATE TO INDICATE DRAINAGE PATTERNS:

**MAINTENANCE NOTES**

**SILT FENCE MAINTENANCE REQUIREMENTS**

- INSPECT THE SILT FENCE PERIODICALLY AND AFTER EACH STORM EVENT.
- IF FENCE FABRIC TEARS, STARTS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY.
- REMOVE DEPOSITED SEDIMENT WHEN IT REACHES HALF THE HEIGHT OF THE FENCE AT ITS LOWEST POINT OR CAUSING THE FABRIC TO BULGE.
- TAKE CARE TO AVOID UNDERMINING THE SILT FENCE DURING CLEAN OUT.
- AFTER THE CONSTRUCTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE THE FENCE AND SEDIMENT DEPOSITS, BRING THE DISTURBED AREA TO GRADE AND STABILIZE.

**TEMPORARY SEDIMENT BASIN MAINTENANCE REQUIREMENTS**

- INSPECT TEMPORARY SEDIMENT TRAPS AFTER EACH STORM EVENT AND IMMEDIATELY REPAIR ANY EROSION AND PIPING HOLES.
- REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH.
- REPLACE SPILLWAY GRAVEL FACING IF CLOGGED.
- INSPECT VEGETATION AND RE-SEED IF NECESSARY.
- CHECK THE SPILLWAY DEPTH PERIODICALLY TO INSURE A MINIMUM OF 1.5 FT. DEPTH FROM THE LOWEST POINT OF THE SETTLED EMBANKMENT TO HIGHEST POINT OF THE SPILLWAY CREST AND FILL ANY LOW AREA TO MAINTAIN DESIGN ELEVATION.
- PROMPTLY REPLACE ANY DISPLACED RIPRAP BEING CAREFUL THAT NO STONES IN THE SPILLWAY ARE ABOVE DESIGN GRADE.
- AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, REMOVE THE STRUCTURE AND SEDIMENT. SMOOTH THE SITE TO BLEND WITH ADJOINING AREAS, AND STABILIZE.

**TEMPORARY GRAVEL CONSTRUCTION ENTRANCE MAINTENANCE REQUIREMENTS**

- INSPECT ENTRANCE PAD AND SEDIMENT DISPOSAL AREA WEEKLY AND AFTER STORM EVENTS OR HEAVY USE.
- RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
- TOPRESS WITH CLEAN STONE AS NEEDED.
- IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY BRUSHING OR SWEEPING. BULK CLEARING OF ACCUMULATED SEDIMENT SHALL NOT INCLUDE FLUSHING WITH WATER.
- REPAIR ANY BROKEN ROAD PAVEMENT IMMEDIATELY.

**RIPRAP MAINTENANCE REQUIREMENTS**

- INSPECT PERIODICALLY FOR DISPLACED ROCK MATERIAL, SLUMPING, AND EROSION AT EDGES ESPECIALLY DOWN STREAM OR DOWN SLOPE.

CONSTRUCTION PHASE (SPECIFIC ACTIVITIES OR EROSION CONTROL PRACTICES)	CONSTRUCTION SCHEDULE CONSIDERATIONS
<b>PRE-CONSTRUCTION ACTIONS</b> (EVALUATION/PROTECTION OF IMPORTANT SITE CHARACTERISTICS)	BEFORE CONSTRUCTION, EVALUATE, MARK, AND PROTECT VEGETATION SUITABLE FOR FILTER STRIPS, ESPECIALLY IN PERIMETER AREAS.
<b>INSTALL PERIMETER BMP'S</b> (CONSTRUCTION EXITS, FILTER STRIPS, SILT FENCE, DROP INLET PROTECTION, EQUIPMENT PARKING AREAS)	INSTALL GRAVEL ENTRANCE/EXIT; IDENTIFY & PROTECT A 15' (MIN.) VEGETATIVE FILTER STRIP ALONG THE EAST, NORTH & SOUTH PERIMETER OF THE SITE. INSTALL SILT FENCE INSIDE THE FILTER STRIP TO PREVENT SEDIMENT FROM EXITING THE SITE.
<b>PREPARE SITE FOR CONSTRUCTION</b> (SOIL STOCKPILES AND TEMPORARY SEDIMENT BASIN)	INFORM ALL CONTRACTORS OF AREAS TO BE PROTECTED. IF STOCKPILING, IMMEDIATELY AFTER TEMPORARY SEED AND INSTALL SEDIMENT BARRIERS AROUND THE PERIMETER. THE EXISTING BASIN SHALL BE UTILIZED AS A TEMPORARY SEDIMENT BASIN DURING CONSTRUCTION.
<b>RUNOFF CONTROL</b> (ROCK CHECK DAMS, DIVERSIONS, PERIMETER DICES, OUTLET PROTECTION)	INSTALL EROSION STRUCTURES AT THE OUTLETS OF ALL FES STRUCTURES IMMEDIATELY AFTER INSTALLATION. INSTALL ROCK CHECK DAMS IMMEDIATELY AFTER SWALES HAVE BEEN CONSTRUCTED.
<b>RUNOFF CONVEYANCE SYSTEMS</b> (STABILIZE SWALES, INLET AND OUTLET PROTECTION, CHANNELS)	STABILIZE SWALES IMMEDIATELY AFTER CONSTRUCTION WITH PERMANENT SEEDING. INSTALL INLET AND OUTLET PROTECTION IMMEDIATELY AFTER CONSTRUCTION OF STORM SEWER STRUCTURES.
<b>LAND CLEARING AND GRADING</b> (CUTTING/FILLING, GRADING DRAINS, SEDIMENT TRAPS, BARRIERS, DIVERSIONS, SURFACE ROCKING)	BEGIN MAJOR CLEARING AND GRADING AFTER INSTALLING THE KEY SEDIMENT AND RUNOFF CONTROL MEASURES. CLEAR BORROW AND DISPOSAL AREAS AS NEEDED. INSTALL ADDITIONAL CONTROL MEASURES AS GRADING PROGRESSES.
<b>SURFACE STABILIZATION</b> (TEMPORARY AND PERMANENT SEEDING, MULCHING, SODDING, RIP-RAP)	APPLY TEMPORARY OR PERMANENT STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS WHERE WORK IS DELAYED OR COMPLETED.
<b>BUILDING CONSTRUCTION</b> (BUILDING, UTILITIES, PAVING)	INSTALL NECESSARY EROSION AND SEDIMENT CONTROL PRACTICES AS WORK TAKES PLACE.
<b>LANDSCAPING AND FINAL STABILIZATION</b> (TOPSOIL, TREES, AND SHRUBS, PERMANENT SEEDING, MULCHING, SODDING, RIP-RAP)	STABILIZE ALL OPEN AREAS INCLUDING BORROW AND SPOIL AREAS. REMOVE TEMPORARY CONTROL MEASURES AND STABILIZE.

\*MAINTENANCE--(1)UNLESS PRACTICES AT LEAST ONCE A WEEK, A (2) MAKE REPAIRS IMMEDIATELY AFTER PERIODS OF RAINFALL.

B3. STABLE CONSTRUCTION ENTRANCE LOCATIONS AND SPECIFICATIONS:
B4. SEDIMENT CONTROL MEASURES FOR SHEET FLOW AREAS:
B5. SEDIMENT CONTROL MEASURES FOR CONCENTRATED FLOW AREAS:
B6. STORM SEWER INLET PROTECTION MEASURE LOCATION AND SPECIFICATIONS:
B7. RUNOFF CONTROL MEASURES:
B8. STORM WATER OUTLET PROTECTION SPECIFICATIONS:
B9. GRADE STABILIZATION STRUCTURE LOCATIONS AND SPECIFICATIONS:
B10. LOCATION, DIMENSIONS, SPECIFICATION, AND CONSTRUCTION DETAILS OF EACH STORMWATER QUALITY MEASURE:
B11. TEMPORARY SURFACE STABILIZATION METHODS APPROPRIATE FOR EACH SEASON:
B12. PERMANENT SURFACE STABILIZATION SPECIFICATIONS:
B13. MATERIAL HANDLING AND SPILL PREVENTION:
B14. MONITORING AND MAINTENANCE GUIDELINES FOR POLLUTION PREVENTION MEASURES:
B15. EROSION & SEDIMENT CONTROL SPECIFICATIONS FOR INDIVIDUAL BUILDING LOTS:

Seed Species *	Rate/acre	Planting depth	Optimum dates **
Wheat or Rye	150 lbs.	1 to 1-1/2 in.	9/15 to 10/30
Spring Oats	100 lbs.	1 in.	3/1 to 4/15
Annual Ryegrass	40 lbs.	1/4 in.	3/1 to 5/1 8/1 to 9/1
German Millet	40 lbs.	1 to 2 in.	5/1 to 6/1
Sudangrass	35 lbs.	1 to 2 in.	5/1 to 7/30
Buckwheat	60 lbs.	1 to 2 in.	4/15 to 6/1
Corn (broadcast)	300 lbs.	1 to 2 in.	5/11 to 8/10
Sorghum	35 lbs.	1 to 2 in.	5/1 to 7/15

\* Perennial species may be used as a temporary cover, especially if the areas to be seeded will remain idle for more than 1 year.

\*\* Seeding done outside the optimum seeding dates increases the chances of seeding failure. Dates may be extended or shortened based on the location of the project site within the state.

- The seed bed shall be prepared by applying 400-600 lbs per acre of 12-12-12 fertilizer and working 2-4 inches into the soil and mulching material applied at the rate of 2 tons per acre.

- Dormant & Frost Seeding should be utilized for seeding when temperatures are too low for germination to occur.

B12. PERMANENT SURFACE STABILIZATION SPECIFICATIONS:

- The Contractor shall fertilize, seed and mulch all disturbed areas when final grading and land disturbing operations are complete. Seeding requirements shall be in accordance with Table 1, located in Chapter 7, pages 38-39 of the Indiana Storm Water Quality Manual, shown to the right.
- The seed bed shall be prepared by applying 400-600 lbs per acre of 12-12-12 fertilizer and working 2-4 inches into the soil and apply straw/hay mulch at the rate of 2 tons per acre.
- Optimum dates for permanent seeding are March 1 - May 10 and August 10 - September 30.
- Temporary seeding should be considered between May 10 and August 10.
- Dormant & Frost Seeding should be utilized when temperatures are too low for germination to occur, October 1 - May 9.

B13. MATERIAL HANDLING AND SPILL PREVENTION:

- The Contractor shall notify the Indiana Department of Environment Management (1.800.233.7745) when spills occur and threaten water quality due to storm water runoff.
- All materials used on-site shall be stored in an orderly manner and approved containers. Materials shall be kept in their original packaging with the manufacturer's labels until ready for installation.
- All materials shall be used, installed and disposed of in accordance with its manufacturer's instructions and as required by governing agencies.
- The Contractor shall utilize re-sealable containers when storing unused materials susceptible to spillage.
- The Contractor shall keep manufacturer's labels and Material Safety Data Sheets (MSDS) on site.
- The Contractor shall monitor equipment and their parking areas for leaks.

B14. MONITORING AND MAINTENANCE GUIDELINES FOR POLLUTION PREVENTION MEASURES:

- All stormwater quality measures shall be inspected and maintained in accordance with its respective manufacturer's recommendations and the Indiana Storm Water Quality Manual.
- A self-monitoring program that includes the following must be implemented:
  - A trained individual shall perform a written evaluation of the project site:
    - By the end of the next business day following each 1/2-inch storm event; and
    - at a minimum of one time per week.
  - The evaluation must address:
    - The maintenance of existing stormwater quality measures to ensure they are functioning properly; and
    - Identify additional measures necessary to remain in compliance with all applicable statutes and rules.
  - Written evaluation reports must include:
    - The name of the individual performing the evaluation;
    - The date of the evaluation;
    - Problems identified at the project site; and
    - Details of corrective actions recommended and completed.

B15. EROSION & SEDIMENT CONTROL SPECIFICATIONS FOR INDIVIDUAL BUILDING LOTS:
C. STORMWATER POLLUTION PREVENTION PLAN - POST CONSTRUCTION COMPONENT
C1. DESCRIPTION OF POLLUTANTS AND THEIR SOURCES ASSOCIATED W/ THE PROPOSED LAND USE:
C2. SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTATION:
C3. DESCRIPTION OF PROPOSED POST CONSTRUCTION STORMWATER QUALITY MEASURES:
C4. LOCATION, DIMENSIONS, SPECIFICATIONS & CONSTRUCTION DETAILS OF EACH STORMWATER QUALITY MEASURE:
C5. DESCRIPTION OF MAINTENANCE GUIDELINES FOR PROPOSED POST CONSTRUCTION WATER QUALITY MEASURES:

- Individual lot Owners/Developers shall comply with Best Management Practices (BMPs) outlined in this plan. In addition, lot Owners/Developers shall be responsible for implementing and maintaining BMPs for their respective lots including, but not limited to:

- Install/maintain a stable construction site access.
- Install/maintain appropriate perimeter BMPs prior to land disturbance. (i.e. silt fence, straw bales, vegetated filter strips, etc)
- Clean-up of sediment that may get tracked or washed onto roads.
- Stabilize all areas outside the lot which were disturbed as a result of the subject lot development.

C. STORMWATER POLLUTION PREVENTION PLAN - POST CONSTRUCTION COMPONENT

C1. DESCRIPTION OF POLLUTANTS AND THEIR SOURCES ASSOCIATED W/ THE PROPOSED LAND USE:

- Oil, grease, antifreeze, brake fluid, brake dust, rubber fragments, gasoline, diesel fuel, and other hydrocarbons, and metals from vehicular sources.
- Grit (sediment) from wearing of the road surface and falling off vehicular sources.
- Trash, bacteria and biological agents in trash, from littering or improper disposal or storage.
- Pesticides, herbicides, and fertilizers from lawn/landscaping maintenance applications.
- Elevated receiving water temperatures from stormwater runoff contact with impervious surfaces.

C2. SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTATION:

- Site monitoring for trash, debris, and deposited pollutants shall be a daily routine.
- Once construction is complete, permanent seeding will be applied to the entire disturbed area excluding the asphalt roadways.
- The use of grass lined swales and vegetated filters are existing and will remain a permanent aspect of the site.
- Absorption materials used to clean up hydrocarbon puddles shall be approved by the EPA.
- Disposal of all trash, debris, and pollutants shall be in a manner approved by their respective governmental agencies.

C3. DESCRIPTION OF PROPOSED POST CONSTRUCTION STORMWATER QUALITY MEASURES:

- The lot owner shall monitor the pavement for pollutants deposited from vehicular sources.
- The lot owner shall use approved absorption materials to clean up such hydrocarbon pollutants.
- The lot owner shall periodically monitor the site for trash, debris, and grit deposited on site.
- The lot owner shall pick up debris and dispose of in an approved manner.
- The lot owner shall minimize lawn/landscaping chemical applications.
- The detention basin will allow sediment in the runoff entering the basin time to settle out prior to being discharged.
- The existing & proposed vegetated areas will cause infiltration of runoff and trap pollutants before they leave the site.
- The vegetated ditches and detention basin will be utilized to filter pollutants, reduce runoff velocities, and lower the temperature of the runoff before it reaches the receiving water.
- The storm sewer pipe network will help lower the temperature of the storm water runoff before it discharges into the receiving water.
- The combination of grass lawns, vegetated swales and 1.5-acre oversized detention basin will be utilized to meet the minimum requirement of 80% Total Suspended Solids (TSS) removal prior to leaving the site. (See attached literature)

C4. LOCATION, DIMENSIONS, SPECIFICATIONS & CONSTRUCTION DETAILS OF EACH STORMWATER QUALITY MEASURE:

- Refer to the Sheet C-112 for locations of the control measures. Dimensions, specifications, and details of the measures are depicted in the Indiana Storm Water Quality Manual and Sheet C-113. Other practices which may be implemented shall be utilized and installed in accordance with the manufacturer's instructions.

C5. DESCRIPTION OF MAINTENANCE GUIDELINES FOR PROPOSED POST CONSTRUCTION WATER QUALITY MEASURES:

- Site monitoring for trash, debris, and deposited pollutants shall be a daily routine and shall be the responsibility of the lot owners.
- The use of grass-lined swales and vegetated filters are existing and will remain a permanent aspect of the site. The lot owners shall monitor these areas for trapped pollutants and erosion.
- The respective lot owners shall maintain all storm drainage features (i.e. swales, detention basin, etc.) in accordance with the recorded plat covenants.

**Table 1. Permanent Seeding Recommendations**

Open Low-Maintenance Areas (remaining idle more than six months)

Seed Mixtures	Rate/acre Pure Live Seed	Optimum Soil pH
1. Perennial ryegrass - white clover *	70 lbs. 2 lbs.	5.6 to 7.0
2. Perennial ryegrass - tall fescue **	70 lbs. 50 lbs.	5.6 to 7.0
3. Tall fescue ** - white clover *	70 lbs. 2 lbs.	5.5 to 7.5

Steep Banks and Cuts, Low-Maintenance Areas (not mowed)

Seed Mixtures	Rate/acre Pure Live Seed	Optimum Soil pH
1. Smooth brome grass - red clover *	35 lbs. 20 lbs.	5.5 to 7.0
2. Tall fescue ** - white clover *	50 lbs. 2 lbs.	5.5 to 7.5
3. Tall fescue ** - red clover *	50 lbs. 20 lbs.	5.5 to 7.5
4. Orchard grass - red clover * - white clover *	30 lbs. 20 lbs. 2 lbs.	5.6 to 7.0
5. Crownvetch * - tall fescue **	12 lbs. 30 lbs.	5.6 to 7.0

Lawns and High-Maintenance Areas

Seed Mixtures	Rate/acre Pure Live Seed	Optimum Soil pH
1. Bluegrass	140 lbs.	5.5 to 7.0
2. Perennial ryegrass (turf type)	60 lbs. 90 lbs.	5.6 to 7.0
3. Tall fescue (turf type) ** - bluegrass	170 lbs. 30 lbs.	5.6 to 7.5

Channels and Areas of Concentrated Flow

Seed Mixtures	Rate/acre Pure Live Seed	Optimum Soil pH
1. Perennial ryegrass - white *	150 lbs. 2 lbs.	5.5 to 7.0
2. Kentucky bluegrass - smooth bromegrass - switchgrass - timothy	20 lbs. 10 lbs. 3 lbs. 4 lbs.	5.5 to 7.5
3. Perennial ryegrass - white clover **	10 lbs. 2 lbs.	5.5 to 7.5
Tall fescue ** - white clover **	150 lbs. 2 lbs.	5.5 to 7.5
Tall fescue ** - perennial ryegrass - Kentucky bluegrass	150 lbs. 20 lbs. 20 lbs.	5.5 to 7.5

\* For best results: (a) legume seed should be inoculated; (b) seeding mixtures containing legumes should preferably be spring-seeded, although the grass may be fall-seeded and the legume frost-seeded; and (c) if legumes are fall-seeded, do so in early fall.

\*\* Tall fescue provides little cover for, and may be toxic to some species such as white-tailed deer. The IDNR recognizes the need for additional research on alternatives such as buffalograss, orchardgrass, smooth bromegrass, and switchgrass. This research, in conjunction with demonstration areas, should focus on erosion control characteristics, wildlife toxicity, turf durability and drought resistance.

**APPROVED**  
OCT 14 2014

VANDERBURGH COUNTY  
DRAINAGE BOARD

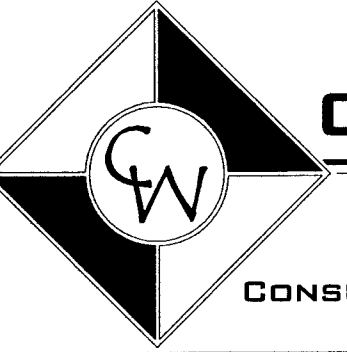
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Written dimensions shown hereon shall take precedence over scaled dimensions. Contractors shall calculate and measure required dimensions. Notify Cash Wagner & Associates, PC with any variations in dimensions or conditions from those indicated on these drawings. This drawing was based on available information. Commencement of Work constitutes verification and acceptance of existing conditions.

Application of a material or equipment to Work installed by others constitutes acceptance of that Work and assumption of responsibility for satisfactory installation.

16 Sept 14

SIGNATURE                      DATE



**CASH WAGNER & ASSOCIATES, PC**  
CONSULTING ENGINEERS • LAND SURVEYORS

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NO.	DATE	BY	DESCRIPTION
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PROJECT NO.:	14-1878
DESIGNED BY:	G.A.M.
DRAWN BY:	G.A.M.
FILENAME:	SWP3 Narrative
LAYOUT TAB:	SWP3 Narr
SCALE:	None

PROJECT:	KINWAY PARK	DATE:	09.16.14
ADDRESS:	HECKEL ROAD EVANSVILLE, IN	DRAWING NO.:	C-109
SHEET TITLE:	<b>SWP3 NARRATIVE</b>	OR: 18	

RECEIVED BY THE VANDERBURGH COUNTY SURVEYORS OFFICE

10/9/2014