

DRAINAGE REPORT & STATMENT

May 19, 2012
Revised June 8th, 2012

by:

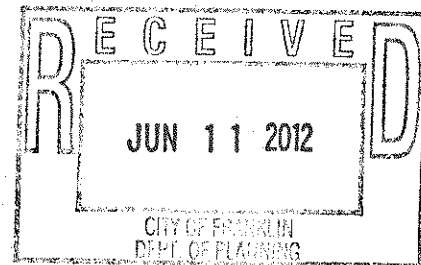
CKW Land Surveying, Inc.
Work Order No. 120011

Project:

Football Field Improvements

at:

Saint Rose Athletic Field
114 Lancelot Drive
Franklin, Indiana 46131
PC-2012-09



The proposed field improvements to this property, as proposed by the CKW plans, revised on June 8th, 2012 will ensure proper drainage by continuing to convey surface storm water along current flow paths to maintain consistent flow patterns. As indicated by the calculations provided the post developed 10 & 100 year runoff quantities represent an insignificant increase. In addition a rain-garden is proposed along the downstream edge of the site. As a result there are no anticipated adverse impacts on downstream property owners.

No state or federal water quality permits are anticipated. Plans are subject to review by the Johnson County Soil and Water Conservation District (**Franklin MS4**).

The receiving waters for the site is in the Young's Creek **HUC 5120204090030**.

No drinking wells, wetlands, or lakes are impacted by this site plan application.

EXISTING DRAINAGE CONDITIONS:

This project is located within an existing 13.5 acre campus, said campus has an existing 119,500 sq. ft. of hard surface (total campus). The proposed increase in hard surface (trail) is only 2,000 square feet, bringing the total hard surface area to 121,500 square feet. Time of concentration utilized for the rainfall intensity analysis for this report is 30 minutes (1/2 hour).

Rainfall Depth @ 24 hour duration	2- Year (in)	10- Year (in)	100- Year (in)
24 Hour	2.64	4.08	6.00

Rainfall Intensities @ ½ hour duration	2- Year (in/hr)	10- Year (in/hr)	100- Year (in/hr)
24 Hour	1.98	3.09	4.50

PRE- Development Urban Runoff Coefficients	"C"	Area (sf)	Area (acres)
Impervious	0.90	119,500	
Lawn	0.20	468,560	
Composite	<u>0.34</u>	588,060	13.5

PRE- Development discharge rates	2- Year (cfs)	10- Year (cfs)	100- Year (cfs)
$Q = C i A$	9.09	14.18	20.66

PROPOSED DRAINAGE CONDITIONS:

The proposed improvements' calculated impact on future flow rates are indicated herein.

Rainfall Depth @ 24 hour duration	2- Year (in)	10- Year (in)	100- Year (in)
24 Hour	2.64	4.08	6.00

Rainfall Intensities @ ½ hour duration	2- Year (in/hr)	10- Year (in/hr)	100- Year (in/hr)
24 Hour	1.98	3.09	4.50

POST- Development Urban Runoff Coefficients	"C"	Area	Area
		(sf)	(acres)
Impervious	0.90	121,500	
Lawn	0.20	466,560	
Composite	<u>0.34</u>	588,060	13.5

POST- Development discharge rates	2- Year (cfs)	10- Year (cfs)	100- Year (cfs)
$Q = C i A$	9.09	14.18	20.66

RIRM 18081C0227D

Our site is entirely within Zone X, as plots by map scale on The FEMA Flood Insurance Rate Map for The City of Franklin (180114), Johnson County, Indiana. Map No. 18081 C 0227 D, Dated August 2, 2007 (Rain-garden 100 Year Elev. 740.25).

Soils Map, GIS Contour Map, GIS Flood Limit Map

See the last three pages of this report.

Rain-garden Design & Analysis:

Rain-garden Drainage Area = 3.2 Acres, or 139,400 Sq Ft

Rainfall depth for 100 year 24 hour rainfall event = 6.00 inches

Rainfall volume = $6.00/12 \times 3.2 \times 43560 = 69,696$ Cu Ft (100 year 24 hour event)

Depth of Rain-garden plantings = 8 inches

Infiltration Rate (based from JC Soil Map, Br & CrA) = 0.0002 FPS

Area of Rain-garden plantings (when complete) = 6,000 - 8,000 Sq Ft

Storage / Infiltration area within contour 740 = $.25 \times 8,650 = 2,162.5$ Cu Ft

Storage / Infiltration area within contour 741 = 23, 000 Cu Ft

Volume of infiltration over 24 hours = $0.0002 \times 2,162 \times 60 \times 60 \times 24 = 37,411$ Cu Ft
= $0.0002 \times 23,000 \times 60 \times 60 \times 24 = 397,440$ Cu Ft

Total volume provided during 100 year 24 hour event = $23,000 + 397,440 = 420,440$ Cu Ft

420,440 ≥ 69,696 Therefore Rain-garden has capacity.

This existing site is composed of a church, parsonage, and provincial school, as well as a shelter-house, sidewalks, parking areas, existing football field, and green space. Our petition is to replace the existing football field (reverting it to green space) with an improved field, walking path and eventually a formal entry (permitted separately).

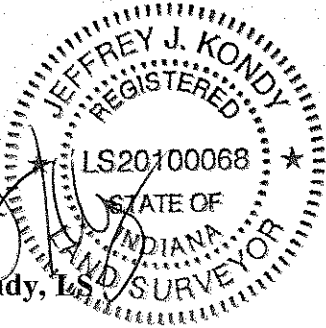
This total Saint Rose Site is approximately 13.5 acres, or 588,756 square foot in size. The area of proposed improvement (disturbance) is less than 3.5 acres. The proposed increase in hard surface (trail from parking lot to field) is only 2,000 Sq Ft, bringing the total hard surface area to 121,500 Sq Ft, or less than 21% total coverage in a zoning that allows upto 75% total coverage.

The church and school buildings drain to the North & West, into the Camelot Storm System. The Main Parking Lot, and Grass Field, sheet drain in a North to South- Southeast direction (400 feet south), eventually making its way through The Methodist Community & Johnson County Hospital systems, and eventually to Youngs Creek. The Grass Field is served by under-drains and two surface inlets. The under drains are the result of an undocumented joint venture between Saint Rose and the Methodist Community. A beehive inlet exists along the south property line (South of shelter-house) tying into the Franklin Professional Office Complex System. A PVC raised pipe type inlet exists in the Southeast corner of the Saint Rose Campus. No surface water enters said inlet because it is more than 1.5 feet higher than grade, it appears to be a clean-out for under-drains.

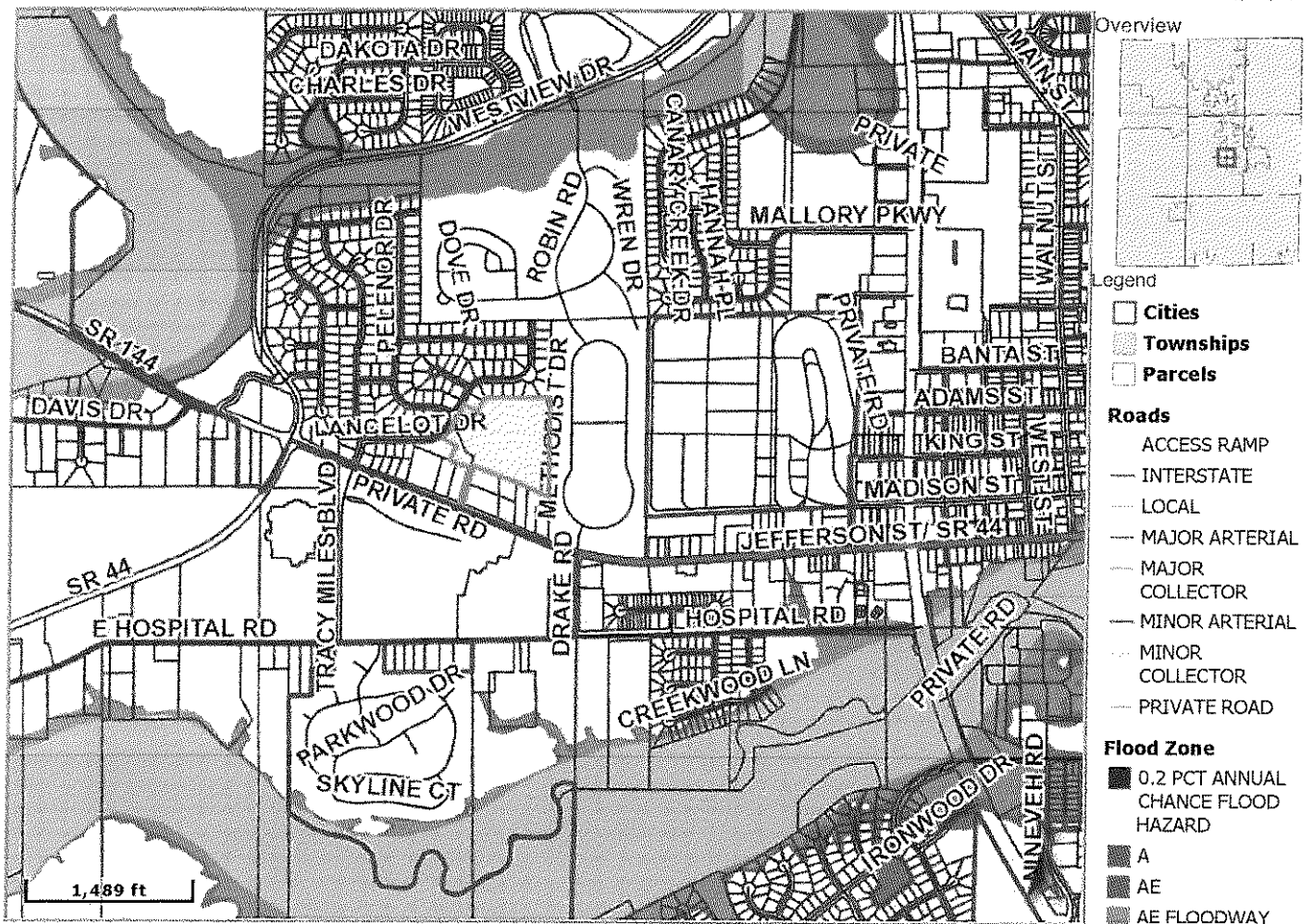
The area of proposed improvement is covered in high to medium type grass, and sheet-drains basically from North to South- Southeast. Under-drains, or field tiles service this site. Within the scope of our petition we propose to tie the rain garden under-drain into this tile system.

The area between the proposed football field and the tree line (St. Rose South property line) is proposed as an out-doors classroom (Sheet 5), or bio-science lab. Students will have the opportunity for hands on study in areas of biology, botany, hydrology, soils, chemistry, and human environmental impact. Although the optimum garden size here is 6,000 Sq Ft. It's reasonable to expect the students would start small (500 Sq Ft), developing and re-developing the garden over time.

Although we do not meet strict adherence to the City of Franklin Drainage Standards, we feel our design does conform to the philosophy and intent of said drainage requirements. Our low percentage of hard surface (Less Than 21%), our improved drainage (rain-garden & under-drain), and proposed vegetation (maintenance of trees along South property line, and the addition of trees along the East property line), as well as the installation of appropriate rain garden plantings, we feel the proposed petition will improve the overall water quality & drainage.


Jeffrey J. Kondy, LS


Date Created: 6/5/2012



Parcel ID	41-08-15-031-071.000-009	Alternate ID	5100 15 34 001/00	Owner Address	ROMAN CATHOLIC ARCHDIOCESE OF INDIANAPOLIS PROPERTIES INC PO BOX 1410 INDIANAPOLIS, IN 46206-1410
Sec/Twp/Rng	n/a	Class	Exempt: Religious structure		
Property Address		Acreage	13.48		
District	009				
Brief Tax Description	E SW S15 T12 R4 NON-TAXABLE 13.246 ACRE E. SW. S15 T12 R4 .24 ACRES. (Note: Not to be used on legal documents)				

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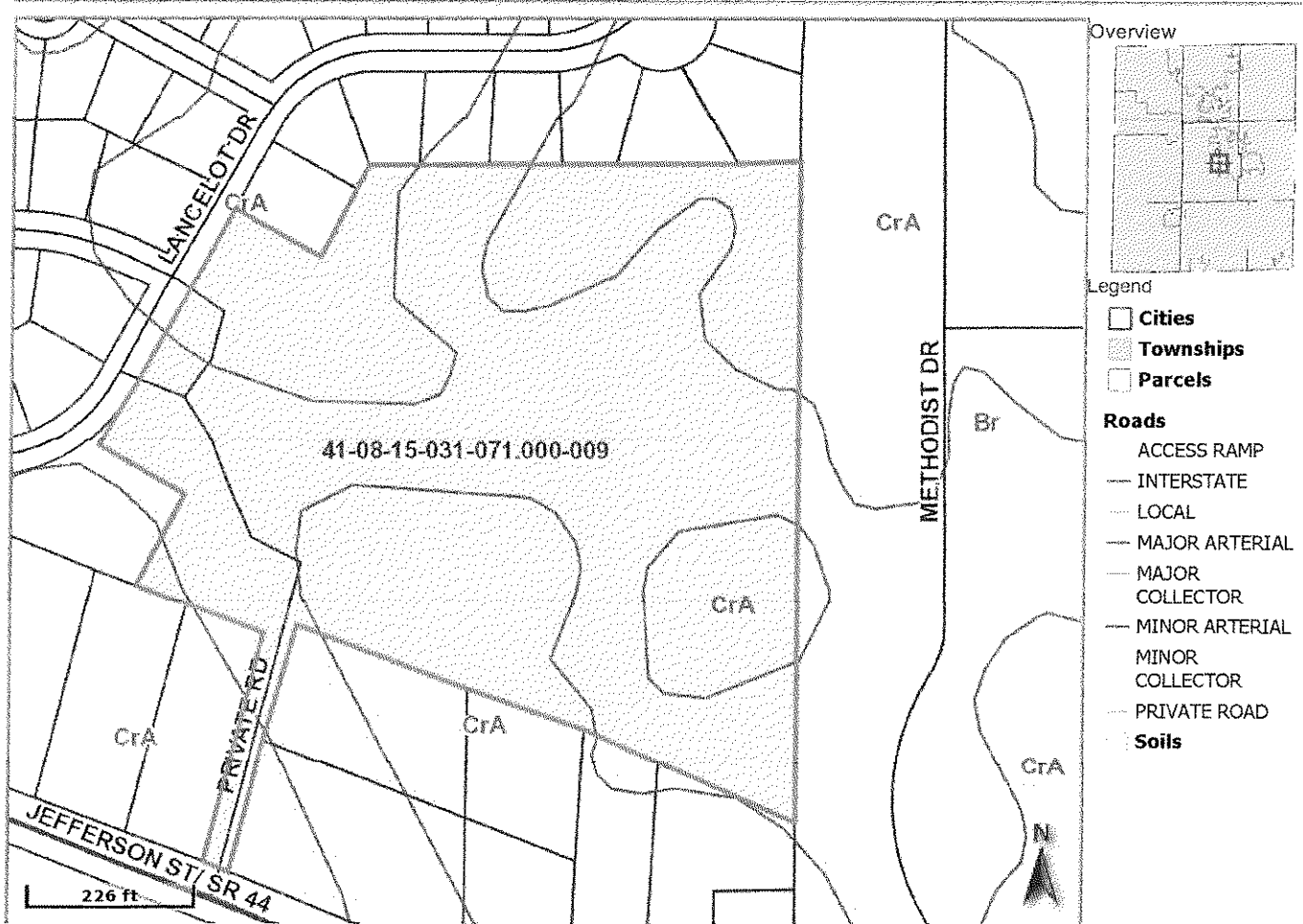
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DISCLAIMER: An official flood plain determination must be made by the Floodplain Administrator for your local jurisdiction.



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Overview

Legend

- ☐ Cities
- ☐ Townships
- ☐ Parcels

Roads

- ACCESS RAMP
- INTERSTATE
- LOCAL
- MAJOR ARTERIAL
- MAJOR COLLECTOR
- MINOR ARTERIAL
- MINOR COLLECTOR
- PRIVATE ROAD
- Soils

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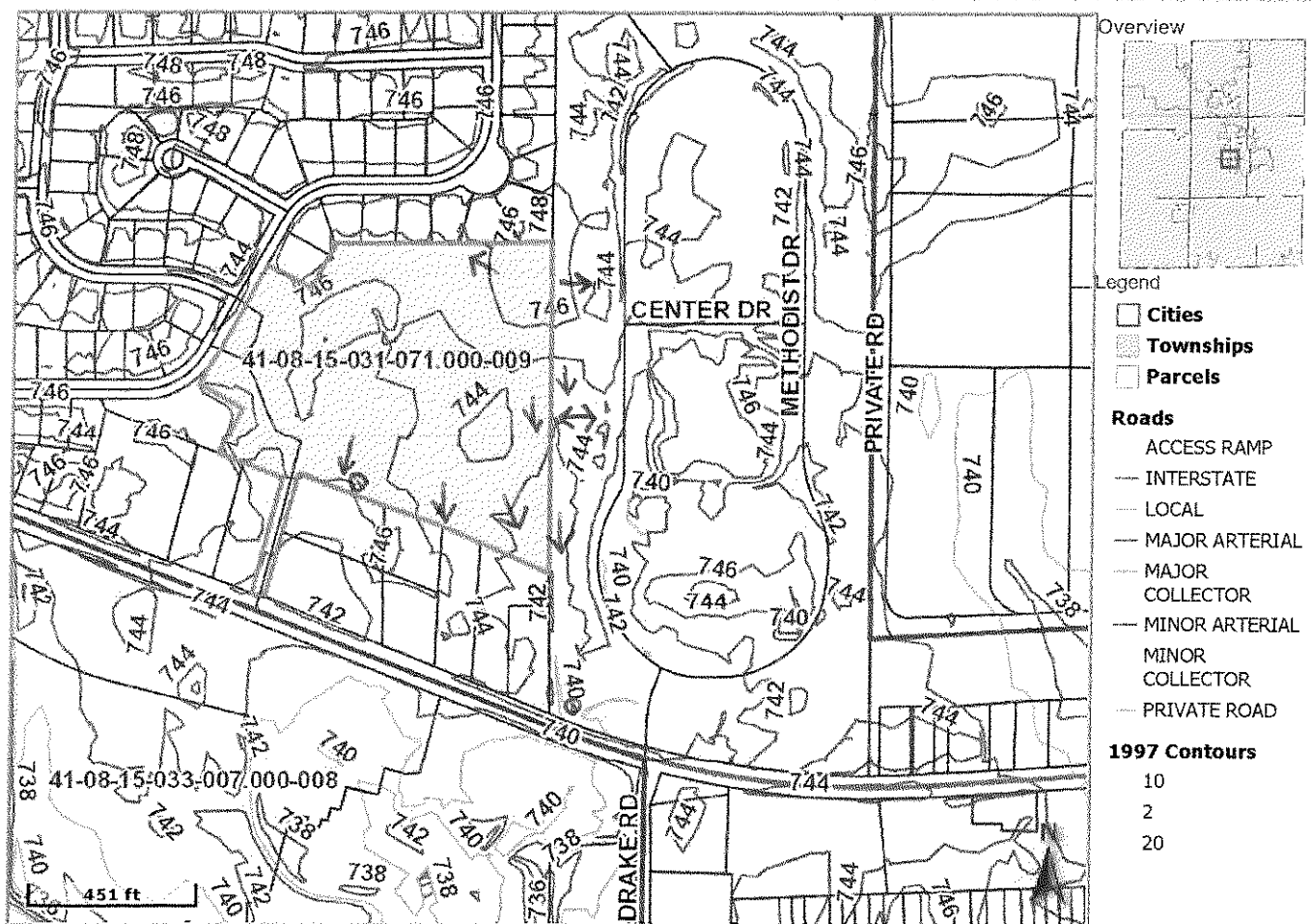
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