

ANDY EASLEY ENGINEERING, INC.

1133 WEST MILL ROAD
EVANSVILLE, INDIANA 47710

TELEPHONE (812) 424-2481
FACSIMILE (812) 425-3463

E-MAIL: easley@evansville.net
www.easleyengineering.com

CIVIL ENGINEERS
LAND SURVEYORS

REGISTERED IN
INDIANA • KENTUCKY • ILLINOIS
RALPH A. EASLEY, JR., P. E.

May 12, 2004

Mr. John Stoll
Vanderburgh County Engineer
Old Court House
Suite 307
Evansville, IN 47708

RE: Fawn Creek Section "A"

Dear Mr. Stoll,

This is to certify that all basic street improvements have been installed in subject subdivision with the exception of cleaning the road, applying tack coat and the final surface course of asphalt and any required binder repair for that portion of the roadways listed below. The square footage or linear footage and the associated dollar value for these items are as follow:

Streets

A. Buck Ridge Trail	781.84 LF	\$10.15/LF	\$7,935.68
B. Antler Court	160.33 LF	\$10.15/LF	\$1,627.35
C. Alyssum Drive	267.03 LF	\$10.15/LF	\$2,710.35

Drainage

Grading work for emergency Spillway	- Lump Sum	\$3000.00
Remedial work of Release Structure	- Lump Sum	\$2000.00
Erosion Control	- Lump Sum	\$1500.00
Final As Built Plans	- Lump Sum	\$500.00

Sidewalks

Sidewalks	1679.6 LF	\$6.50/LF	\$10,917.40
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Sanitary Sewers

All sanitary sewers are installed and accepted for maintenance

\$0.00

RECEIVED BY THE
VANDERBURGH COUNTY
SURVEYOR'S OFFICE

5/17/04 am

Rof

Water Mains

All water mains are installed, tested, as built and awaiting acceptance by the City. As Builts Plans, Engineer's Certification and request for final inspection were provide to the City on March 3rd, 2004.

	\$100.00
Sub-Total	\$30,290.78
5 percent contingency as per APC	\$1,514.54
Total	\$31,805.32

You may direct any questions or comments concerning this development to me.

Sincerely,



Ralph A. Easley, Jr., P.E., L.S.
President
Andy Easley Engineering, Inc.

cc: Tim Scheu
✓ Bill Jeffers, Vanderburgh County Surveyor
Len Will, Evansville Water and Sewer Department

Freeman, Linda

From: Thomas Keith [tom@easleyengineering.com]

Sent: Friday, May 21, 2004 3:51 PM

To: Freeman, Linda

Subject: Fawn Creek Section "B"

After our phone conversation I started to think that something wasn't right ... I went back and reviewed the calculations and we are actually raising the normal water elevation 3.3 feet, not 1 foot.

I have rechecked the calculations and everything appears to be correct.

You are right in your assessment that the existing easements in Section "A" will have to be expanded to accommodate the revised lake area - approximately 10 feet. This will not be a problem. There is a platted PUE that was provided to accommodate a proposed sewer. This sewer was not and will not be installed. Sanitary Sewer service is provided at the road frontage.

The design contours shown on the overall storm sewer layout plan reflect the proposed redesign.

I apologize for the confusion. I should never rely strictly on my memory when the calculations were done 3 months ago,

If you have any additional questions, give me a call.

Tom

File
copy

5/21/2004



VANDERBURGH COUNTY ENGINEERING DEPARTMENT

201 Northwest Fourth Street • Suite 307
 Old Vanderburgh County Courthouse
 Evansville, Indiana 47708-1358
 Tel. (812) 435-5773
 FAX (812) 435-5678

May 24, 2004

Mr. Andy Easley, P.E.
 Andy Easley Engineering
 1133 W. Mill Road
 Evansville, IN 47710

RE: Fawn Creek Subdivision, Section I

Post-It® Fax Note 7671		Date 5/24/04	# of pages 3
To Bill Jeffers	From Pat Seitz		
Co./Dept. Co. Surveyor	Co. Co. Eng.		
Phone #	Phone #		
Fax # 5023	Fax #		

Dear Mr. Easley:

Based on inspections of section I of Fawn Creek Subdivision on May 14, 2004 and May 24, 2004, the items that need to be addressed currently include the following:

1. There is no surface course on Alyssum Drive, Buck Ridge Trail, or Antler Court.
2. Water ponds in numerous places on the several streets within this section. While some of the ponding can be attributed to the absence of a pavement surface, some of the areas will continue to pond regardless of the final road surface elevation (e.g. the north curb line on Buck Ridge Trail between Alyssum Drive and Antler Court).
3. There are numerous pavement failures throughout the subdivision.
4. There are numerous cracked curb sections throughout the subdivision. The majority of these appear to be located in front of developed lots.
5. The concrete sidewalk in front of 8244 Buck Ridge Trail was placed over concrete block. Concrete block is not an acceptable bedding material for sidewalks. Any and all concrete block must be removed and the affected sidewalk sections must be replaced with proper bedding materials.
6. C.I. #120 must be re-grouted around the pipe discharging into the inlet. Water was noticed to be infiltrating through the previous grouting attempt.
7. C.I. #121 must be properly shimmed and grouted between the inlet casting and the concrete box structure.
8. C.I. #122 must be properly shimmed and grouted between the inlet casting and the concrete box structure.
9. Remove any and all sediment deposits and debris from the streets. Particular attention should be paid to cleaning the large sediment deposit at the intersection of Buck Ridge Trail and Antler Court.
10. Ensure that all components of the storm sewer system are free of sediment and debris.
11. Maintain proper erosion control measures throughout the subdivision.
12. J.B. #117B could not be located. If this structure has been installed, please make arrangements to have it uncovered and inform this office when such work has been completed.
13. The existing 12" culvert in the vicinity of F.E.S. #117A that has been marked "To Be Removed" on the drainage plan has not yet been removed.
14. Remove all silt and debris that has accumulated in F.E.S. #117A.
15. A large amount of settlement has occurred over the trench backfill for Pipe #20.

Page 2

Mr. Andy Easley

May 24, 2004

16. F.E.S. #124 could not be located. If this structure has been installed, please make arrangements to have it uncovered and inform this office when such work has been completed.
17. F.F.S. #111 does not appear to have been installed.
18. The numerous wash-outs around the perimeter of the lake must be properly repaired.
19. F.F.S. #140 does not appear to have been installed.
20. A large failure has occurred over the top of the lake outlet pipe. Water is currently (as of 5/24/04) bypassing the outlet control structure and entering a large hole that has formed in the dam and is flowing around the outside of the outlet pipe. I could not determine where or if the water was exiting from the dam.
21. The outlet control structure has not been built according to the lake release structure detail given in the plans.
22. The 51' wide spillway does not appear to have been installed.
23. A.D. #131 could not be located. If this structure has been installed, please make arrangements to have it uncovered and inform this office when such work has been completed.
24. Please provide the necessary documentation to show that a homeowners association has been formed for this section of the subdivision.
25. Please provide a set of record drawings to this office.

Please contact me if you have any questions concerning this.

Sincerely,



Patrick R. Seib
Vanderburgh County Assistant Engineer

cc: Bill Jeffers, Vanderburgh County Surveyor
Norma Duckworth, SWCD

VANDEBURGH COUNTY SURVEYOR'S OFFICE
Room 325 Civic Center, Evansville, Indiana 47708-1833
Phone: (812) 435-5210 FAX: (812) 435-5023
Visit www.vanderburghsurveyor.com and www.riverfriendly.com

September 21, 2004

To: Dominic Romano (dromana@blainc.com)
From: Bill Jeffers (bjeffers@vanderburghsurveyor.com)
RE: Structure #27, Station 123+36, Eichoff Koressell Road, Tributary of Wolf Creek

Dear Dominic: Thank you for the design data you provided this morning regarding Str. #27. The county surveyor's concerns include, but are not necessarily limited to, the following issues:

I. Watershed Area: Difference of Approximately 30 Acres Between Two Operative Plans

- A. The watershed area assigned by BLA to select the 48-inch diameter pipe for Str. #27 reportedly is 59 acres.
- B. A drainage report prepared by Andy Easley Engineering for Fawn Ridge Subdivision assigns 84 acres as the watershed upstream of the discharge point in the same tributary, and from that subdivision at a point coincidental with old Eichoff Road approximately 400 feet upstream of Str. #27.
- C. The area downstream of Fawn Creek Subdivision that discharges through Str. #27 appears to be about 5 acres. Therefore, using data existing in the county surveyor's office, the watershed area for Str. #27 appears to be approximately 89 acres rather than 59 acres.

Note: The Easley plan locates 37 acres of the tributary's watershed north of the rail line, and discharging through a 3' x 3' box culvert under the rail line approximately 1,600 feet upstream of Str. #27. Does the BLA plan for Eichoff Koressell Road include this 37-acre watershed in the calculations for Str. #27?

II. Quantity of Discharge Through Structure #27 Widely Divergent Between Two Operative Plans

- A. BLA Q100: The BLA plan reportedly anticipates 65 cubic feet per second storm water flow through Str. #27 during a one hundred year event.
- B. AE2 Q25: The Easley plan anticipates 135.67 cfs discharge from Fawn Creek Subdivision into the tributary served by Str. #27, and at a point approximately 400 feet and 5 acres upstream of Str. #27. (Easley's plan computes 169 cfs as Q100 at the same point.)

The county surveyor is extremely concerned regarding the widely divergent calculations applied to the same tributary. An undersized culvert for Eichoff Koressell Road could result in extensive flooding of properties upstream of the roadway. All interested parties are encouraged to respond.

Bill Jeffers, Vanderburgh County Surveyor; email: Bjeffers@vanderburghsurveyor.com

Service list: John Stoll, County Engineer; Tom Keith at Andy Easley Engineering.

Str. #27 Station 123+36 just south of railroad bridge

48" CMP or RCP

Area: 59 acres

Q100=65cfs

2.45 inches per hour

57 minutes to

C=.45

3.68 ft. head original

4.21 ft. headwater (Dominic)

400 500

200 000

43560



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RALPH A. EASLEY, JR., P. E.

May 11, 2005

Mr. John Stoll
Vanderburgh County
Engineer
Old Court House
Suite 307
Evansville, IN 47708

✓Mr. Bill Jeffers
Vanderburgh County
Surveyor
Room 325, Civic Center
1 NW M L King Jr. Blvd.
Evansville, IN 47708

Mr. John Rexing
EMC
1931 Allens Lane
Evansville, IN 47720-
1323

RE: Fawn Creek - Section "B"

Dear Gentlemen,

This office was contacted on May 4th via letter from the Evansville-Vanderburgh Area Plan Commission advising that the Letter of Credit for the above referenced Subdivision is due to expire on June 7th of this year.

Mr. Stoll and Mr. Jeffers:

The developer has installed the following street/drainage improvements to date:

- | | | |
|----|--|---------------------|
| 1. | 117.14 Lf of 15" Storm Sewer - Lines 6 and 7 - | Value = \$1600.13 |
| 2. | 50.51 Lf of 18" Storm Sewer - Lines 13 and 14 - | Value = \$773.81 |
| 3. | 899.63 Lf of 48" Storm Sewer - Lines 8, 9, 10, 11, 12 & 15 | Value = \$40,115.89 |
| 4. | Six (6) Street Drain Inlets - Incomplete - Boxes Only | Value = \$1,650.00 |
| 5. | One (1) Area Drain (AD 118) | Value = \$500.00 |
| 6. | One (1) Junction Box (JB 115) | Value = \$500.00 |

Total = \$45,139.83

The value assigned to the street drains is half the cost by the original estimate based on unfinished condition. No money has been figured in regard to excavation, stone bedding or granular backfill. The developer, Mr. Scheu, requests that the dollar value for that portion of the Letter of Credit concerning Storm Sewers be reduced from \$82,114.63 to \$36,974.80

In addition, the developer wrote the County Engineer requesting that sidewalks for this development be waived and has not been notified as to the status of his request. If it has been approved, he would also like to have the \$34,512.52 concerning sidewalks be removed from the Letter of Credit.

RECEIVED BY THE
VANDERBURGH COUNTY
SURVEYOR'S OFFICE

5/13/05 am Bf

Mr. Rexing:

The developer has installed the following sanitary sewer improvements to date:

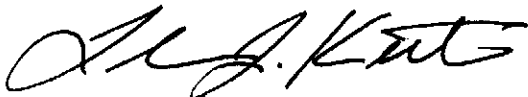
- | | | |
|----|--|---------------------|
| 1. | 1,482.24 LF of 8" PVC Sewer - Lines 5, 6, 7, 8, and 11 | Value = \$22,233.60 |
| 2. | Ten (10) LF of Ductile Iron | Value = \$296.50 |
| 3. | Seven (7) Manholes - MH 104 - 108, 111 and 112 | Value = \$11,445.00 |
| 4. | Thirty-threes (33) Wyes | Value = \$1,650.00 |
| 5. | 898 Lineal Feet 6" laterals | Value = \$6,286.00 |
| 6. | Thirty-threes (33) - 6" bends and fittings | Value = \$990.00 |

Total = \$42,901.10

No money has been figured in regard to excavation, stone bedding or granular backfill. The developer, Mr. Scheu, requests that the dollar value for that portion of the Letter of Credit concerning Sanitary Sewers be reduced from \$86,689.72 to \$43,788.62

Please let me know if you agree with these numbers or how you would like to see them adjusted so that a revised estimate may be completed. A new Letter of Credit must be in place no later than May 24th. If you have any questions or comments, please feel free to contact me.

Sincerely,



Thomas J. Keith
Staff Engineer
Andy Easley Engineering, Inc.

cc: Tim Scheu

OBTAINED THIS PACKET

From Tom Keith 5/26/05



Indiana Department of Environmental Management

Notice of Intent (NOI)

Storm Water Runoff Associated with Construction Activity

NPDES General Permit Rule 327 IAC 15-5 (Rule 5)

Blp

Submission of this Notice of Intent letter constitutes notice that the operator is applying for coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit Rule for Storm Water Discharges Associated with Construction Activity (see 327 IAC 15-2-5 (c) for definition of operator). Permitted operators are required to comply with all terms and conditions of the General Permit Rule 327 IAC 15-5 (Rule 5).

Construction Project:

Name: Fawn Creek County: Vanderburgh

SIC Code or Description of Project: SINGLE FAMILY HOMES

Location: North of the intersection of Allysum and Eickhof Road

Operator Name: Tim Scheu Phone: 812-985-5567

Company Name Leosons Development Company, LLC; Tim Scheu;

Complete Address: 9603 Hogue Road; Evansville, Indiana 47712

Contact Person (if different from above): SAME

Complete Address (if different from above): SAME

Phone: SAME

Affiliation with operator _____

Ownership Status: (check one) Federal ☐ State ☐ Public (other than Federal or State ☐

Private ☒ Other ☐

Location: Latitude & Longitude _____ Or Quarter NE AND SE Section 19

Township 6 Range 11

Name of Receiving Water (and if applicable, name of municipal operator of storm sewer:

an un-named tributary of Wolf Creek

Please note: Even if a retention pond is on the property, the name of the nearest possible receiving water is required

Acresage Total acreage 22.42 Acreage to be Disturbed: 20.00

Timetable: Start Date: May 2002 Estimated End Date for all

Land Disturbing Activity May 2004

Please note: The operator is responsible for all construction activities within the boundaries of the project until all construction is complete. If individual lots are to be sold within a subdivision or commercial park, the operator should consider developing contractual agreements to bind lot buyers and builders to compliance with the Soil Erosion Control Plan established by the operator, and to indemnify the operator for any violations. An example of a contractual clause of this nature may be obtained by contacting IDEM, Office of Water Management Rule 5 Desk at 317/ 232-8760.

(Continued on Reverse Side)



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RALPH A. EASLEY, JR., P. E.

May 8, 2003

Mike Wathen
Vanderburgh County Soil and Water Conservation District
12445 Highway 41 North
Evansville, Indiana 47725

Re: Fawn Creek - Section "A"

Dear Mike,

Tim Scheu ask that we review the erosion problem that has occurred at the west end of Section "A" OF Fawn Creek. Don Griesse of our office visited the site and described the following problems:

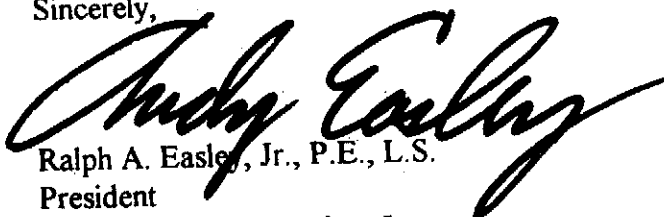
1. Final asphalt surface is not in place and gutter water is bypassing inlets.
2. Inlets in question are on a continuous grade and not in a "sump" condition.

The inlets in question were designed to be at continuous grade. Any water that bypasses these inlets is to be drained by other inlets located further to the west, in a future section, that will be in a sump condition.

This being said, we suggest that sand bags be installed in "snow plow" fashion to direct that water flowing down the road into the inlets. Any erosion created by the bypassing of these inlets must be addresses by filling and compacting the gullies. These areas should receive temporary seed and mulch and may require a temporary erosion control blanket until vegetation can take root.

If you have any questions, comments or concerns, please feel free to contact me.

Sincerely,



Ralph A. Easley, Jr., P.E., L.S.
President
Andy Easley Engineering, Inc.

cc: Tim Scheu

PROOF OF PUBLICATION OF LEGAL ADVERTISEMENT

ACCT XE01

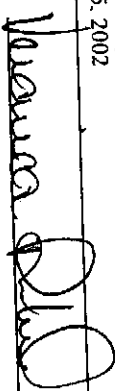
PUBLICATION

HERE

STATE OF INDIANA
VANDERBURGH COUNTY

Personally appeared before JULIE WEINZAPFEL a Notary Public
VERONICA DUNKEL who being sworn, says she is Bookkeeper of
the Evansville Courier Company, publisher of The Evansville
Courier a daily newspaper published in the city of Evansville, in said
county and state and that the legal advertisement, of which the attached
is a true copy, was printed in its issues of:
JUNE 25, 2002

Signed



Subscribed and sworn to before me this date: 07/12/02


Notary Resident of Posey County

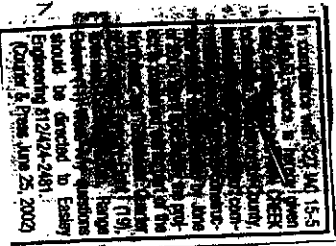
Notary Public

My Commission expires: 9/28/07

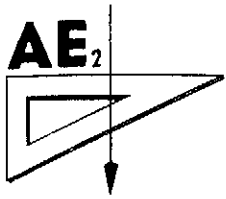
24 Lines 1 time(s) @ = \$ 69.15 PD

RE: FAWN CREEK

ANDY EASLEY ENGINEERING



VEN



ANDY EASLEY ENGINEERING, INC.

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RALPH A. EASLEY, JR., P. E.

June 23, 2002

Rev. Phil Hoy
Vanderburgh County Soil Conservation

Rev. Hoy,

I received a phone call Friday afternoon from Tim Scheu, the developer of Fawn Creek Subdivision, indicating that Norma Graderson of your office had told him that they were not to move any dirt until the Erosion Control Plan was approved.

We provided Mike Wathen with a full set of Erosion Control Plans on Monday June 17th. These plans had been developed with the aid and advice of the Vanderburgh County Surveyor in April of this year. The plans had been distributed to the developer and his contractor.

If was due to some confusion in our office over concerning which development that I had requested that an application to State be made that we are now waiting for publication in the Courier and Press this Tuesday. This will be overnighted to the State Tuesday.

There is a complete and thorough erosion control plan in place. I have been told by both the developer and the contractor that they understand the importance of implementing said plan. I respectfully request that they be allowed to continue to work on Monday in that we have finally reached good construction weather and that there is a complete erosion control plan in place that has been extensively reviewed by Mr. Jeffers.

Sincerely,

Thomas Keith
Andy Easley Engineering, Inc.

Exclusions From Coverage Under this General Permit:

1. Storm water discharges excluded by any provision of 327 IAC 15-2-3.
2. Storm water discharges to waters designated as outstanding state resources listed in 327 IAC 2-1-2(3) or waters designated for exceptional use listed in 327 IAC 2-1-11 (b).

Soil Erosion Control Plan Certification:

By signing this Notice of Intent letter, I, the operator, certify the following:

- A. The erosion control measures included in the Soil Erosion Control Plan comply with the requirements of 327 IAC 15-5-7 and 15-5-9 and the plan complies with applicable state, county, and local erosion control requirements;
- B. The erosion control measures will be implemented in accordance with the plan;
- C. The appropriate state, county, or local erosion control authority and the county Soil and Water Conservation District (SWCD) office have been sent a copy of the erosion control plan for review; and
- D. Implementation of the erosion control measures will be conducted by personnel trained in erosion control practices.

Operator Responsibility Statement:

By signing this Notice of Intent letter, I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature of Operator

Timothy J. Selva

Date

6-17-02

In Addition to this Form, Completed in Full, Please Submit the Following:

- ☒ Proof of publication in a newspaper of general circulation in the affected area notifying the public that a construction activity is to commence, including the start date, end date, and location of the project, and the name and address or phone number of the contact person,
- ☒ \$100 check or money order payable to the Indiana Department of Environmental Management.

Mail to: Indiana Department of Environmental Management

Office of Water Management

100 North Senate Avenue, P.O. Box 6015

Indianapolis, IN 46206-6015

Attention: Permits Section, Storm Water Group

Questions regarding Soil Erosion Control Plan development or implementation may be directed to your local SWCD or Department of Natural Resource office. Questions regarding the Notice of Intent may be directed to the Rule 5 contact person at 317/232-8760 or 800/451-6027. The NOI should be submitted only after your Soil Erosion Control Plan has been submitted to your local SWCD. Any person initiating earth disturbing activity before submittal of the Soil Erosion Control Plan, the NOI, and the \$100 filing fee is operating without a permit and is subject to enforcement and penalty under IC 13-30.



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RALPH A. EASLEY, JR., P.E.

June 14, 2002

Vanderburgh County Soil & Water Conservation District
Attn: Mike Wathen
12445 Hwy 41 North
Evansville, IN 47725

RE: Fawn Creek - North of Ashley Place

Dear Mr. Wathen,

As per our telephone conversation of today, I am including the Erosion Control and Drainage plans that were prepared for the above referenced subdivision in February of this year. These plans were EXTENSIVELY reviewed by Mr. Bill Jefferies, the Vanderburgh County Surveyor, prior to approval. The erosion Control Plan is an integral part of the construction plan and as such have been included in the drainage plans for this project.

It should be noted that the project has been designed and submitted to various State and Local governmental agencies under three different names which has lead to a great deal of confusion. The project was originally titled "Ashley Place II" and was designed and submitted for Mr. Rick Broerman who had developed Ashley Place Sections A through D for Jagoe Development. It was his intention to do a similar development with this piece of property. When it became clear that Jagoe was not interested in developing this piece of property with Mr. Broerman, he (Mr. Broerman) sold the entire approved project to Mr. Tim Scheu, President of Leosons Development LLC.

Mr. Scheu did not like the approved plans and contracted with this office to redesign the subdivision. At this time the project was resubmitted as "Leo's Place". It was under this name that the subdivision received approval of the Street Plans and Drainage Plans and was subsequently given Primary Plat approval.

The investors in the development, finally, had a change of heart concerning the marketability of the name Leo's Place and formerly requested to the Evansville Area Plan Commission that the name be changed to it's present title of "FAWN CREEK".

It was partly due to the above that this office failed to file the erosion control plan that was prepared in February with the State. The technician became confused and thought that the plan had already been filed and failed to pursue the matter or ask me. Rest assured that this plan has been in place and has be discussed at length with both the owner, Mr Scheu, and the contractor Mark Weber. Both have been informed about the importance of correctly implementing and

maintaining the site as it concerns erosion control.

If you have any other questions or concerns about this site, please do not hesitate to call either myself or Mr. Scheu.

Sincerely,

ANDY EASLEY ENGINEERING, INC.

Thomas J. Keith

Civil Engineer

EROSION CONTROL PROCEDURES FAWN CREEK

BRIEF SITE DESCRIPTION:

- A. The existing site is a combination of farmland and woodland with average to steep slopes.
- B. The site is surrounded by residential homes and farmlands. Adjacent owners have been notified of construction as part of the subdivision approval procedures for Vanderburgh County.
- C. All houses built on site will be single family homes.
- D. The soils are HoC3 - Hosmer Silt Loam 6% to 12% slopes, severely eroded, HoB2 - Hosmer Silt Loam 2% to 6% slopes, eroded, Wm - Wilbur Silt Loam., and ZaD3 - Zanesville Silt Loam 12% to 18% slopes, severely eroded. Erosion problems exist.
- E. A portion of this property is located in the 100 year flood zone as per the Flood Insurance Rate Map panel 180256-100B dated March 19, 1982 for Vanderburgh County, Indiana Drainage plans including discharge, have been submitted and approved by the Drainage Board of Vanderburgh County.
- F. An existing ditch/stream, which flows from east to west, is to be utilized to drain the majority of this site. A new retention lake is to be located within this stream with a temporary sediment pond to be installed at the point where said stream discharges off of the site.
- G. Existing and finished contours are shown on the Erosion / Drainage plans. Finished floor elevations are also shown on the Erosion / Drainage Plans.
- H. There is no evidence that stormwater will enter the groundwater.

CONSTRUCTION SEQUENCE SCHEDULING: (refer to legend on plan drawing)

- A. Construction is scheduled to begin May 1, 2002 and completed in two years. Clearing, earth moving and construction staking will begin in May of 2003. The constructions of homes will begin once grading has been completed and rock has been installed for streets by mid July.
- B. Construction of streets and sewers is scheduled to begin May 13th., 2002 Upon completion of the streets and sewers, individual lots will be ready for construction. The lot construction, however, will be dependent upon sale of the lots and future owners wishes.
- C. Each disturbed area will be stabilized as soon as possible according to measures listed below.

D. All future lot owners will be notified of their responsibilities regarding erosion control.

E. Site Development

1. Install Temporary Gravel Construction Entrance according to Practice 3.01* prior to any excavation.

2. Stockpile soil as indicated on plan according to Practice 3.02*.

3. Install and maintain Silt Fence according to Practice 3.74* as indicated on plan.

4. Remove any sediment from roads daily by shoveling or sweeping, as needed.

5. Install rock chute in conjunction with storm sewer construction in accordance with Practice 3.41*.

6. Install and maintain Gravel Curb Inlet Protection according to Practice 3.61* as indicated on plan.

7. Install and maintain Straw Bale Drop Inlet Protection in accordance with Practice 3.54* as indicated on plan.

8. Seed/Sod/mulch site according to Practices 3.11, 3.12, 3.14 and 3.15* after completion of utility and road improvements. Slopes less than 6% shall be seeded and mulched, slopes 6% and greater shall be sodded. Area adjacent to lake shall be permanent seeded.

9. Install and maintain Rip-Rap according to Practice 3.16* as indicated on plan.

10. Install and maintain Sediment Pond according to Practice 3.72

E. Lot Development

1. Install Temporary Gravel Construction Entrance according to Practice 3.01* on each lot prior to home construction.

2. Install and maintain Silt Fence according to Practice 3.74* as indicated on plan.

3. Remove any sediment from street daily by shoveling or sweeping as needed.

4. Seed/Sod/Mulch any lot after home is completed according to Practices 3.12, 3.14 and 3.15. Slopes less than 6% shall be seeded and mulched, slopes 6% or greater shall be sodded.

Contractor's Note:

The Erosion Control Practices Indicated on This Plan Were Developed Based Upon The Conceptual Grading Plan Designed For This Subdivision And Do Not Indicate The Limits of

The Erosion Control Practices That May Be Required on Individual Lots During Home Construction. Special Consideration Must Be Given on Those Sites Where Homes Are Benched Into Hillsides to Prevent Soil Erosion.

Soil Erodibility Is Classified by The Following:

0-6% - Low to Moderate Erosion Hazard
6-12% - Moderate to High Erosion Hazard
12% And Greater - Severe Erosion Hazard

In Addition, The Erosion Hazard Becomes Critical If The Length For a Given Slope Exceeds The Following:

0-6% - 200 Feet
6-12% - 100 Feet
12% And Greater - 50 Feet.

All Lots Should Implement Erosion Control Practice 3.01 (Construction Entrance) And Provide Practice 3.74 (Silt Fencing) Where Required During Lot Development. All Lots Bordering The Subdivision Boundary, Existing And Proposed Drainage Swales And Lakes or Ponds Should Implement Erosion Control Practice 3.73 (Vegetative Filter Strip) Along Those Areas. Where The Erosion Hazard Becomes Moderate to High Erosion Controls 3.03 (Surface Roughning) And 3.17 (Erosion Control Blankets) Are Recommended. Where The Erosion Hazard Becomes Severe or Critical, Erosion Control Practices 3.03 (Surface Roughning), 3.17 (Erosion Control Blankets) And 3.14 (Sodding) Are Recommended.

Individual Lot Owners And Contractors Are Advised That it Is The Developer's Intention to Provide a Stable Lot And Should Notify The Developer in Writing Prior to Any Lot Development of Unstable or Eroded Conditions. Any Erosion, Sedimentation, or Mudding of Streets, Swales, Ditches, Lakes, Ponds or Any Part of The Drainage System For This Development Is Prohibited And Will Be The Responsibility of The Lot Owner to Repair or Correct to The Satisfaction of The Local Water And Soil Conservation Officer And County Surveyor.

At any time during construction, an erosion problem arises, take measures needed to correct the situation. Contact the Vanderburgh County Soil and Water Conservation District if assistance is required.

*Details attached

Additional References

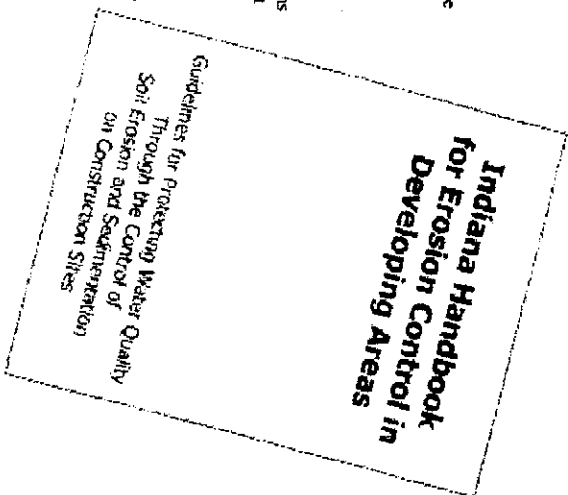
Other resources are available to assist you in taking better care of your construction site.

Indiana Handbook for Erosion Control in Developing Areas

Provides installation instructions on five of the more commonly used building site erosion and sediment control practices. Available from the Indiana Department of Natural Resources, Customer Service Center, 402 West Washington Street, W-160, Indianapolis, IN 46204, 317/232-4200.

Soil Surveys

Another valuable reference when building a home is your county's detailed soil survey report, which contains information about soil hazards and limitations (such as wetness) that may need to be addressed at the time of the construction. Single copies of soil surveys are available at your local Soil and Water Conservation District (SWCD) office or the USDA Natural Resources Conservation Service, 6013 Lakeside Boulevard, Indianapolis, IN 46278-2933, 317/290-3200 or 317/290-3225 FAX.



Division of Soil Conservation
Indiana Department of Natural Resources
402 West Washington Street, Room W-265
Indianapolis, IN 46204-2782
317/233-3870
317/233-3882 FAX
www.state.in.us/dnr/soilcons



The Indiana Department of Natural Resources prohibits discrimination on the basis of race, color, national origin, age, sex, or disability. If you believe you have been discriminated against in any program, activity, or facility as described above, or if you desire further information, please write to IDNR Executive Office, 402 West Washington Street, Room W-265, Indianapolis, IN 46204 (317/232-4020).

Revised September 2001

DNR Division of Soil Conservation

Erosion & Sediment Control for Individual Building Sites

Soil erosion and resulting sedimentation are a leading cause of water quality problems in Indiana. Although erosion has long been associated with agricultural activities, it is also a major concern at construction sites. If the disturbed land is left unprotected, every phase of a construction project has the potential of contributing significant quantities of sediment-laden runoff. Therefore, as a site is developed, all who are associated with a project must do their part to control erosion.



The developer is the primary entity having responsibility for controlling erosion, sedimentation, and stormwater runoff associated with the overall construction project. He or she is expected to install effective sediment control practices and implement an aggressive seeding program to address erosion and sedimentation. A seeding program can provide a financial benefit to the developer because studies have shown vegetated lots typically have a higher sale potential than un-vegetated lots. One of the main components during the initial phases of construction is the installation of the infrastructure (e.g., roads, utilities, and stormwater management systems). As the infrastructure is installed, it gradually transforms into a very efficient conveyor of stormwater runoff and the associated pollutants. In many communities, developers are expected to use appropriate stormwater management practices that will reduce the impact of increased runoff associated with the construction project.

This pamphlet addresses erosion and sediment control on an individual building lot, typically one acre or less in size.

The final phase of most projects is the construction that takes place on building sites. As individual lot construction progresses, residents and businesses begin to occupy buildings that have been completed. Sedimentation in roads, streets, and stormwater drainage systems may now become a nuisance and potential safety hazard to businesses and their clientele as well as residents of the development. The severity of these impacts is often directly related to the intensity of individual lot construction. Once independent construction activities commence on an individual residential or commercial building lot(s), the developer does not necessarily maintain the authority or responsibility to address erosion, sedimentation, and stormwater runoff. Often times these responsibilities are passed onto the individual lot owners and/or their respective contractors.

This pamphlet addresses erosion and sediment control on an individual building lot, typically one acre or less in size. First, it looks at some consequences of construction site erosion and presents four principles important for control. Next, it addresses the issue of proper lot drainage. Then it presents the seven steps within a construction sequence that should result in effective erosion control. Also included are installation instructions for several commonly used building site erosion and sediment control practices, as well as suggested reference materials and sources for further assistance.

Primary Concerns Related to Erosion and Sedimentation

Water Quality

Sediment is the number one pollutant, by volume, of surface waters in the state of Indiana. It impacts water quality by degrading the habitat of aquatic organisms and fish, by decreasing recreational value, and by promoting the growth of nuisance weeds and algae.

Flooding

Sediment accumulation in streams, lakes, and rivers reduces their capacity to contain stormwater, which can result in increased flooding.

Local Taxes

Sediment that finds its way into streets, storm sewers, and ditches results in additional maintenance costs for local, state, and federal governments.

Property Values

Sediment deposits not only impair water quality but also damage property, thus reducing its use and value.

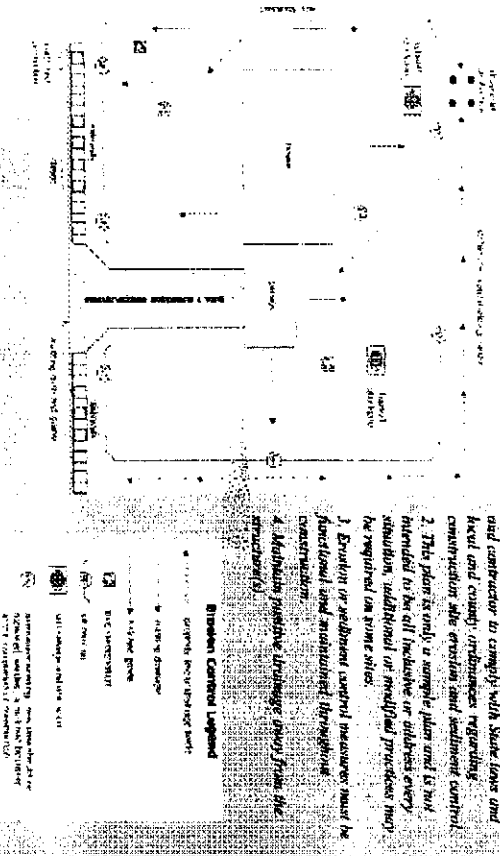


Sample Erosion / Sediment Control Plan

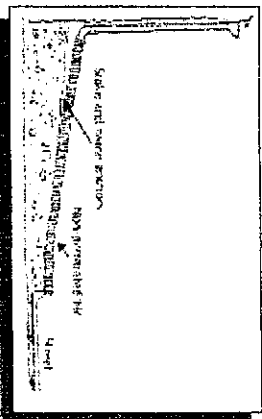
Every building site is unique and poses its own potential erosion hazard. In many instances, additional or alternative control methods are necessary if the lot is adjacent to a creek, lake, or wetland; slopes are greater than the percent; reaches runoff from adjacent areas; and/or more than one acre of ground is disturbed.

NOTES

1. It is the responsibility of the property owner and contractor to comply with State laws and local and county ordinances regarding construction site erosion and sediment control.
2. This plan is only a sample plan and is not intended to be all inclusive or address every situation; additional or modified practices may be required on some sites.
3. Erosion or sediment control measures must be functional and maintained throughout construction.
4. Methods provide drainage away from the structure(s).



Temporary Downspout Extenders



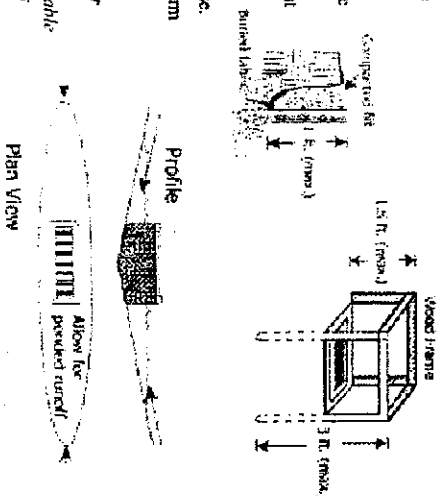
1. Install extenders as soon as gutters and downspouts are installed to prevent erosion from roof runoff.
2. Use non-perforated (un-slotted) drainage tile.
3. Route water to a stable grassed or paved area or to the storm sewer. Do not route water directly to a street or sidewalk in the winter due to the formation of ice.
4. Remove downspout extenders after vegetation is established.



Drop Inlet Protection

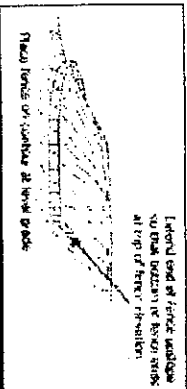
1. Construct a six-inch dike on the down slope side to prevent bypass flow.
2. Dig a trench eight inches deep and four inches wide.
3. Space support posts evenly against the inlet perimeter a maximum of four feet apart, and drive them about 1.5-foot into the ground.
4. Cut enough filter fabric from a single roll to eliminate joints.
5. Using hub and nails, fasten the fabric to the posts.
6. Place 12-inches of fabric in the trench, extending the bottom four inches toward the upslope side.
7. Join silt fence sections by using a wrap joint.
8. Backfill trench with soil materials and compact.
9. Cross brace the corners to prevent collapse.
10. Inspect at least weekly and after each storm event, and repair as needed, and remove accumulated sediments after every storm.

Note: Either follow the directions above, or utilize a pre-manufactured drop inlet protection device. These products are available commercially in a wide variety of materials and designs.



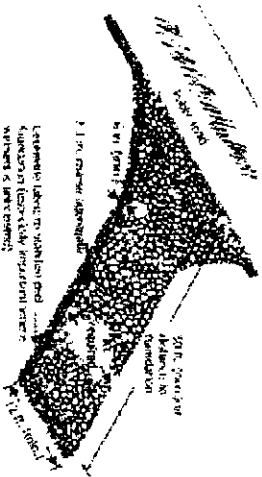
Erosion & Sediment Control Practices

Silt Fences



1. Install silt fence parallel to the contour of the land.
2. Extend ends upslope to allow water to pond behind fence.
3. Excavate a trench 4-inches wide, 8-inches deep.
4. Install fence with posts on the down slope side.
5. Place 12-inches of fabric in the trench, extending the bottom four inches toward the upslope side.
6. Join silt fence sections by using a wrap joint.

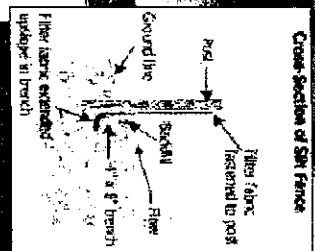
Gravel Construction Entrances



1. Place six inches of coarse aggregate (INDOT CA No. 2) over a stable subgrade.
2. Construct the drive at least 12-feet wide and 50-feet long or the distance to the foundation.
3. Add stone as needed to maintain six inches of clean depth.
4. To improve stability or if wet conditions are anticipated, place geotextile fabric on the graded foundation.



7. Backfill trench with soil materials and compact.
 8. Inspect at least weekly and after each storm event, repairing as needed and removing sediment deposits when they reach one-half the fence height.
- Note: Silt fence has a life expectancy of six months to one year, whereas straw bale barriers have a limited life of three months or less.*



Controlling Building Site Erosion & Sedimentation

Erosion control is important on any building site regardless of its size. Usually, principles and methods for controlling erosion and reducing off-site sedimentation are relatively simple and inexpensive. Here are four basic steps to follow when developing a building site.

Evaluate the Site
Inventory and evaluate the resources on the lot before building. Location of structures should be based on the lot's natural features. Identify trees that you want to save and vegetation that will remain during construction. Also identify areas where you want to limit construction traffic. Whenever

possible, preserve existing vegetation to help control erosion and off-site sedimentation.

Select & Install Initial Erosion/Sediment Control Practices
Determine the specific practices needed, and install them before clearing the site. Among the more commonly used practices are vegetative filter strips, silt fences, gravel drives, and inlet protection.

Develop a Practice Maintenance Program
Maintenance of all practices is essential for them to function properly. Practices should be

inspected twice a week and after each rainfall event. When a problem is identified, repair or replace the practice immediately. If frequent repairs are required, another more substantial practice may need to be selected. In addition, any sediment that is tracked onto the street should be scraped and deposited in a protected area. Do not flush sediment from the street with water.

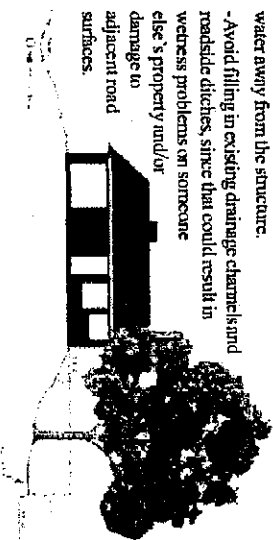
Revegetate the Site
Establish vegetation as soon as possible. A well-maintained lot has a higher sale potential.

Building Lot Drainage

The best time to provide for adequate lot drainage is before construction begins. With proper planning, most drainage problems can be avoided. That's important because correcting a problem after it occurs is usually much more difficult and costly. Here's what it takes to ensure good lot surface and subsurface drainage.

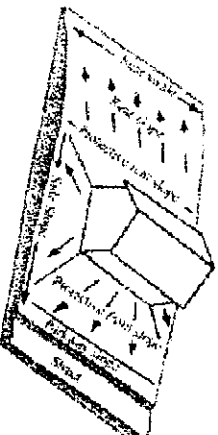
Surface Drainage

- Position the structure a minimum of 18 inches above street level.
- Direct stormwater runoff away from the structure by grading the lawn to provide at least six inches of vertical fall in the first ten feet of horizontal distance.
- Construct side and rear yard swales to take surface water away from the structure.
- Avoid filling in existing drainage channels and roadside ditches, since that could result in wetness problems on someone else's property and/or damage to adjacent road surfaces.



Subsurface Drainage

- Provide an outlet for foundation or footer drains and for general lot drainage by using storm sewers (where allowed), or obtain drainage easements if you must cross adjoining properties.
- If you accidentally cut through an existing field tile, assume that it carries water even if currently dry; therefore, reroute (using the same size tile) around the structure or septic field, then reconnect it.



Construction Sequence for Erosion & Sediment Control

1 Evaluate the Site

Before construction, evaluate the site; mark vegetative areas and trees to be protected; unique areas to preserve; on-site septic system absorption fields; and vegetation suitable for filter strips, especially in perimeter areas.

Identify Vegetation to be Saved
Select and identify the trees, shrubs and other vegetation to be saved (see Step 2: "Vegetative Filter Strips").

Protect Trees & Sensitive Areas

- To prevent root damage, do not grade, burn, place soil piles, or park vehicles near trees or in areas marked for preservation.
- Place plastic mesh or snow fence barriers around the trees' drip lines to protect the area below their branches.
- Place a physical barrier, such as plastic fencing, around the area designated for a septic system absorption field (if applicable).



2 Install Perimeter Erosion and Sediment Controls

Identify the areas where sediment-laden runoff could leave the construction site, and install perimeter controls to minimize the potential for off-site sedimentation. It's important that perimeter controls are in place before any earth-moving activities begin.

Protect Down-Slope Areas with Vegetative Filter Strips

- On slopes of less than six percent, preserve a 20-to-30-foot wide (minimum) vegetative buffer strip around the perimeter of the property, and use it as a filter strip for trapping sediment.
- Do not mow filter strip vegetation shorter than four inches.

Protect Down-Slope Areas with Silt Fences and Other Appropriate Practices

- Use silt fencing along the perimeter of the lot's downslope side(s) to trap sediment. Refer to silt fence practices.
- Restrict all lot access to this drive to prevent vehicles from tracking mud onto roadways. Refer to gravel construction entrances.

Protect Storm Sewer Inlets

- Cut inlet protection devices are not efficient in removing sediment from stormwater runoff. Additional erosion and sediment control measures must be incorporated into the plan and the day-to-day construction operations to minimize the amount of sediment entering a street. The best defense in controlling sedimentation is the installation of perimeter protection down slope of the construction activity using gravel construction entrances and daily cleaning and removal of sediment from streets.

Even with these measures implemented, sediment and tracked soil will find their way into the street. "The Indiana Handbook for Erosion Control in

Developing Areas" contains

standards and specifications for several curb inlet protection devices and there are a number of commercial curb inlet protection devices on the market that are designed to capture sediment. However, these practices are not designed to trap large amounts of sediment and require frequent maintenance if they are to remain effective. When selecting a curb inlet protection measure, it is important to select a device that does not block the inlet entirely. Total obstruction of the inlet will cause excessive ponding and in some situations bypass flow that may result in erosion.

- Protect on-site storm sewer drop inlets with silt fence material, straw bales, or equivalent measures. Refer to drop inlet protection diagram.

3 Prepare the Site for Construction

Prepare the site for construction and for installation of utilities. Make sure all contractors (especially the excavating contractor) are aware of areas to be protected.

Subsides and Shrinkage Topsoil or Subsoil

- Remove topsoil (typically the upper four to six inches of the soil material) and stockpile.
- Remove subsoil, including any excavated material associated with basement construction, and stockpile separately from the topsoil.
- On small building sites, it may not be feasible to stockpile soil material on each individual lot due to space limitations. In these situations, soil material should be transported to

protected areas designated on the overall construction plan or those areas designated by the developer.

- Locate the stockpiles away from any down slope street, driveway, stream, lake, wetland, ditch or drainage way.
- Immediately after stockpiling, temporary seed the stockpiles with annual ryegrass or winter wheat and/or install sediment barriers around the perimeter of the piles.



4 Build Structure(s) and Install Utilities

Construct the home and install the utilities; also install the sewage disposal system and drill water well (if applicable); then consider the following:

- Install Downspout Extenders
- Although not required, downspout extenders are highly recommended as a means of preventing lot erosion from roof runoff.
- Add the extenders as soon as the gutters and downspouts are installed.
- Be sure the extenders have a stable outlet, such as a paved area, or a well vegetated area. Do not route runoff directly to a street in winter due to the formation of ice. Refer to temporary downspout extenders diagram.

5 Maintain Control Practices

Maintain all erosion and sediment control practices until construction is completed and the lot is stabilized.

- Inspect the control practices a minimum of twice a week and after each storm event, making any needed repairs immediately.
- Toward the end of the each work day, sweep or scrape up any soil tracked onto roadway(s). Do not flush areas with water.

6 Revegetate Building Site

Immediately after all outside construction activities are completed, stabilize the lot with sod, seed, and/or mulch.

Rehabilitate the Stockpiled Subsoil and Topsoil

- Spread the stockpiled subsoil to rough grade.
- Spread the stockpiled topsoil to a depth of four to six inches over rough-graded areas.
- Fertilize and lime according to soil test results or recommendations of a seed supplier or a professional landscaping contractor.

Seed or Sod Bare Areas

- Contact local seed suppliers or professional landscaping contractors for recommended seeding mixtures and rates.
- Follow recommendations of a professional landscaping contractor for installation of sod.



- Water newly seeded or sodded areas every day or two to keep the soil moist. Less watering is needed once grass is two inches tall.

Mulch Newly Seeded Areas

- Spread straw mulch on newly seeded areas, using one and one-half to two bales of straw per 1,000 square feet.
- On flat or gently sloping land, anchor the mulch by crimping it two to four inches into the soil. On steep slopes, anchor the mulch with netting or tackifiers. An alternative to anchored mulch would be the use of erosion control blankets.

7 Remove Remaining Temporary Control Measures


Once the sod and/or vegetation is well established, remove any remaining temporary erosion and sediment control practices, such as:

- Remove downspout extenders. Or, shorten to outlet on an established vegetated area, allowing for maximum filtration.
- Remove storm sewer inlet protection measures.



SHEET NO. OF	DATE JANUARY, 2013 PROJECT NO. 2013 REVISIONS	DRAWN BY T.M. C.E. SCALE AS SHOWN	SLOPE IDENTIFICATION PLAN LEO'S PLACE LEO SONS DEVELOPMENT, LLC VANDERBURGH COUNTY, INDIANA AE ANDY EASLEY ENGINEERING CIVIL ENGINEERING (0172) 424-2481 LAND SURVEYING 1123 WEST HILL ROAD ELlettsVILLE, IN 47404
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Scale 1" = 50'



0-8% - 200 FEET
8-12% - 100 FEET
12% OR GREATER - 50 FEET



*Fawn
Creek*

LEO'S PLACE LAKE AND DAM MAINTENANCE

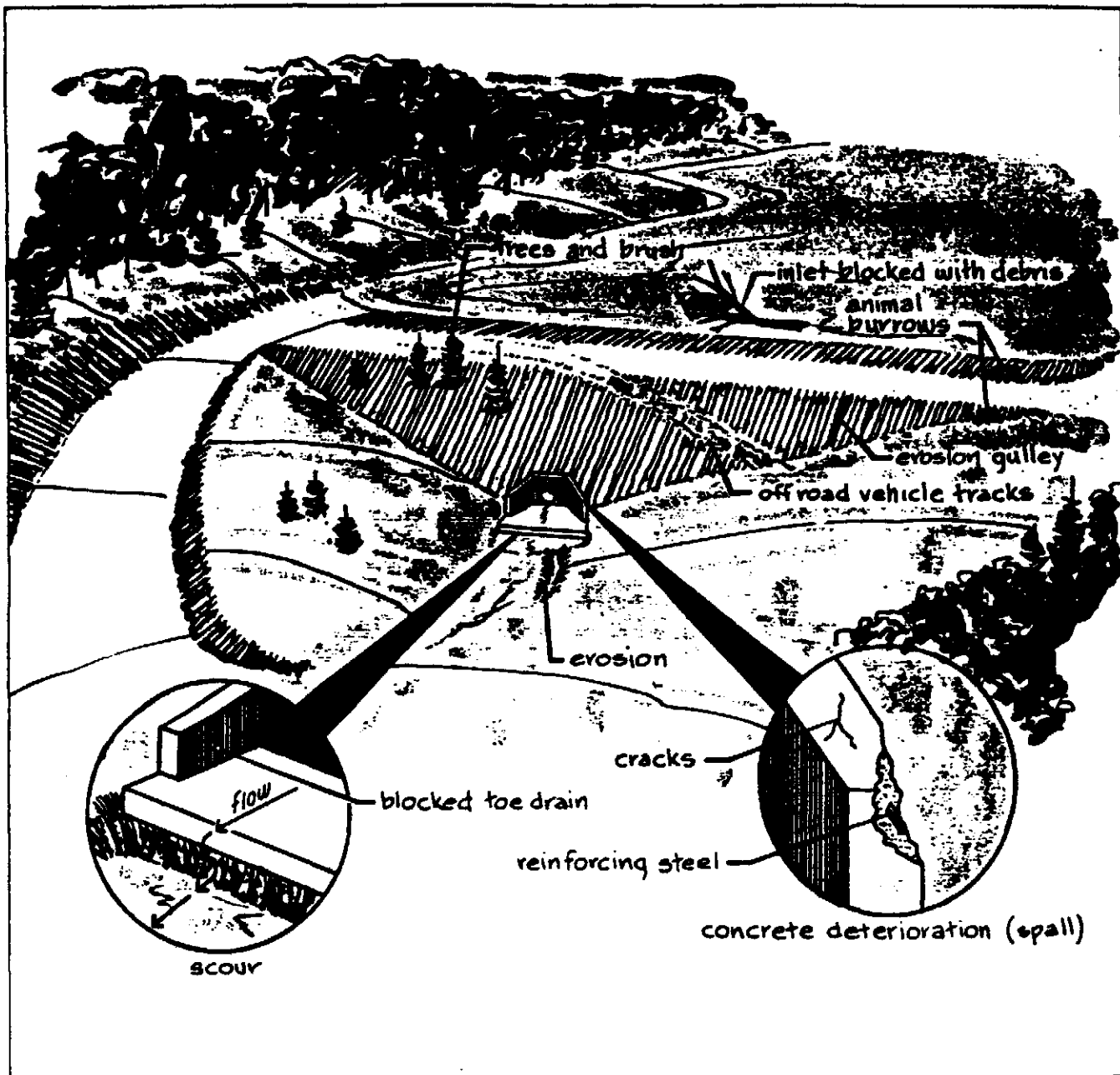
I. Why Maintain?

A good maintenance program will prolong the life of the dam and protect against deterioration. A poorly maintained dam will deteriorate. Nearly all dam components and materials are susceptible. A good maintenance program provides not only protection for the developer or home owner's association, but for the public in general. The cost of a proper maintenance program is small compared to the cost of major repairs (caused by lack of maintenance) or litigation. Lack of proper maintenance can be used against the developer or home owner's association in civil and/or criminal negligence suits resulting from damages caused by a failure of the dam.

II Common Maintenance Items

The home owners association or developer can develop a basic maintenance program from their systematic and frequent inspections. An inspection should be performed monthly and after major flood events. During each of the inspections, a checklist of items to be maintained and items to be observed should be recorded. See checklist and the end of this manual.

Minor and routine maintenance items, such as cutting grass, painting and equipment repair, should be regular and may be handled by the home owners association or developer. The maintenance items illustrated on the following page should have special attention.



COMMON MAINTENANCE ITEMS

Release Structure

It is CRITICAL to the operation of the lake and dam that the Release Structure be properly maintained. The Release Structure weirs (entrances and/or intakes) must be clear of all debris to allow uninterrupted flow. Leo's Place is designed to have a "pill box" style release structure with a weir on the three exposed sides of the box. The intention of the weirs (the rectangular openings in the release structure) is to allow the retention or "backing up" of water to prevent down stream flooding and to provide a controlled release of major storms. These weirs must be kept free and clear of ALL debris to operate correctly. They have been sized to be self cleaning, but may require the removal of large debris that cannot pass thru the weir or structure itself. If these weirs should become clogged during a storm, overflow is first directed to flow over and into the top of the release structure. Sufficient freeboard (storage) has been provided and the release structure has been sized to allow for most major storms (25 year up the 100 year event) to pass thru the top of the release structure should the weirs become clogged.

The Release Structure has been designed to discharge (drain into) a 48" pipe that in-turn flows into the existing ditch. This 48" pipe must also be kept free and clear of debris. As strange as it may sound, debris may accumulate in this pipe and should be periodically inspected to assure it is open. Shrubs, discarded Christmas trees, fire wood, and even tree stumps have been found by maintenance crews in the past.

Debris often accumulates after storm events. A plugged Release Structure can lead to a rising pool elevation which may overtop and breach the dam. Regular and timely removal of trash and debris is recommended. In the event that the Release Structure or the 48" discharge pipe were to become obstructed, the lake is designed with an emergency spillway that is approximately 50 feet long located along the dam. This spillway is to be a grass lined path leading back down to the existing ditch. The emergency spillway is provided to prevent an uncontrolled release of storm water.

A debris rack has NOT been provided for either the weir openings or the top of the release structure itself. It has been the designer's experience that debris racks at this point in the system do more harm than good. It is recommended that the home owners association take any and all necessary precautions to prevent debris from entering the system. These precautions can be as simple as not putting yard waste into drainage swales and keeping limbs picked up and disposed of in a proper manner.

If trash racks were to be installed at a later date, the maintenance or replacement is a critical item. Undersized or improperly spaced trash racks can significantly reduce spillway capacity and endanger the dam. The Emergency spillways (earth overflow type) should be mowed and checked for erosion after each use. Check the 48" pipe joints to assure there is no leakage or seeping that may cause dam failure.

Discharge Areas

High flow can cause underwater erosion (scour) which may affect the stability of the dam, spillway slabs or walls. The release pipe is to have a rip-rap rock chute to dissipate energy. Frequent surveillance of the discharge area is required to identify excessive erosion. It may be advisable to inspect or to probe underwater. If erosion is minor, the owner can probably correct these items himself. However, if severe, professional assistance will probably be required.

Slope Protection

Trees and brush should not be allowed to grow on embankments or in emergency spillways. Periodic cutting/controlling of the embankment vegetation and adjacent areas is recommended. It will also prevent the growth of trees and brush. Upstream slope protection is needed to protect against erosion. This can be provided by coarse rip-rap with a properly designed soil or fabric filter underneath. Failed rip-rap should be repaired. If the failures are frequent, professional help should be obtained.

Inspect the dam and lake slopes for burrowing animal infestation that may cause damage and take the necessary legal steps to have them removed and any damage repaired.

Concrete

Concrete spalling and cracking is a common problem. Spalling concrete (chipped, flaked or "pock-marked") or cracks can lead to further deterioration of the structure over a period of time. Spalled concrete can expose steel reinforcement and further deteriorate the structural integrity of the dam. When it is observed, it should be repaired and patched to protect the structural integrity of concrete parts of the dam. Concrete joints and concrete pipe joints should be periodically checked and kept water tight.

III. Summary

This manual lists common maintenance items that should be addressed by the developer and or home owners association after said association takes over ownership of the facility. Failure to maintain the dam and lake in a proper operating condition can lead to potential liability and could cause failure of the dam. Systematic and proper maintenance will help to extend the life of the dam and may prevent a failure.

IV References

1. "A Recommended Maintenance Program for Owners of Dams" by Charles L.

Hahn, MS, P.E., Division of Water, Ohio Department of Natural Resources.

2. "Maintenance of Equipment" by Bruce O. Frudden, Mead Hunt, Inc., Madison, Wisconsin.
3. "Dam Safety Manual," State Engineer's Office, State of Colorado, June 1983.
4. Operation, Maintenance and Inspection Manual for Dams, Dikes and Levees, Ohio Department of Natural Resources, Division of Water, Dam Inspection Section, November 1983.

OWNER'S INSPECTION CHECKLIST

Dam Name: _____

Date of Inspection: _____

Your Name: _____

	<u>NO</u>	<u>YES</u>	<u>IF YES</u>
Surface cracks?	<input type="checkbox"/>	<input type="checkbox"/>	Contact state agency or engineer.
Slumping or cracking on the upstream or downstream side?	<input type="checkbox"/>	<input type="checkbox"/>	Contact state agency or engineer.
Erosion from runoff, wave action or traffic?	<input type="checkbox"/>	<input type="checkbox"/>	Repair and stabilize.
Embankment/spillway seepage? Water muddy?	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Contact state agency or engineer.
Top of the dam settled?	<input type="checkbox"/>	<input type="checkbox"/>	Contact state agency or engineer.
Loss of rip-rap?	<input type="checkbox"/>	<input type="checkbox"/>	Contact state agency or engineer.
Trees, brush or burrows on embankment?	<input type="checkbox"/>	<input type="checkbox"/>	Clear trees, brush and seed.
Spillways blocked?	<input type="checkbox"/>	<input type="checkbox"/>	Clear spillway immediately.
Exposed metal rusty?	<input type="checkbox"/>	<input type="checkbox"/>	Clean and paint.
Concrete deterioration or cracks?	<input type="checkbox"/>	<input type="checkbox"/>	Contact state agency or engineer.
Cracks or uneven movement?	<input type="checkbox"/>	<input type="checkbox"/>	Contact state agency or engineer.
Scour?	<input type="checkbox"/>	<input type="checkbox"/>	Contact state agency or engineer.
Pipe joint separation?	<input type="checkbox"/>	<input type="checkbox"/>	Contact state agency or engineer.
Gates operational?	<input type="checkbox"/>	<input type="checkbox"/>	Repair and make operational.
Trash racks blocked?	<input type="checkbox"/>	<input type="checkbox"/>	Clean out debris.

Iron Creek

FINAL DRAINAGE PLAN REQUIREMENTS FOR LEO'S SUB:

RE: HILLSIDE DEVELOPMENT:

Hillside development requires special consideration with regard to lot size and slope stability to protect downhill areas from landslides and erosion of unstable soil, particularly where building sites will be benched into the hillsides.

(Source: Subdivision Code; Section 16.12.070C)

Slope gradients can be grouped into three general ranges of soil erodibility:

- 0 – 6% low to moderate erosion hazard
- 6 – 12% moderate to high erosion hazard
- over 12% severe erosion hazard

Within these slope gradient ranges, the greater the slope length, the greater the erosion hazard. As a general rule, the erosion hazard becomes critical if the slope length exceeds the following values:

- 0 – 6% 200 feet
- 6 – 12 % 100 feet
- over 12 % 50 feet

(Source: Rule 5 Guidelines for Analyzing Topographic Data)

REQUIREMENTS FOR ADDRESSING HILLSIDE DEVELOPMENT:

1. Accurately depict all lot grading required to create building sites in accordance with all requirements relative to the developer's intent as to house sizes and locations; building lot dimensions; road and drainage facilities locations; building code requirements; and all other applicable considerations.
2. On the Drainage Plan, describe and depict the areas of the site that have potential for moderate, high, severe, or critical erosion problems using the guidelines given above.
3. On the Drainage Plan, describe and depict the type, material, purpose, specification, and installation each permanent stabilization practice to be installed to achieve stability; particularly where building sites are benched into the hillsides, and where earthwork increases the potential for critical erosion problems using the guidelines given above.
4. On the Drainage Plan, describe and depict the type, material, purpose, specification and installation of each channel stabilization practice, in addition to or exceeding normal requirements, to address potential effects liable to occur where drainage channels intercept sheet or concentrated flow from land with "critical" gradients (see guidelines above) regardless of the flow line gradient of the receiving channel.