

## MEMORANDUM

**TO:** Programs, Project and Operations Subcommittee

**SUBJECT:** West Branch Channel Project (84<sup>th</sup> to 96<sup>th</sup> Street)  
Low Water Crossing Site WW7

**DATE:** February 3, 2009

**FROM:** Martin P. Cleveland, Construction Engineer

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In 2006, Ehrhart Griffin and Associates prepared the design for seven low water crossings on seven tributaries to West Branch Channel in 84<sup>th</sup> Street to Giles Road reach. The low water crossings (box culverts) carry the 2 year frequency flood flows and were designed to handle over topping by larger storm events via articulated concrete block slope paving. The low water crossings were constructed by M.E. Collins in 2007 at a cost of \$525,000.

In 2008, the West Branch Channel Project and the associated tributaries experienced multiple high water events in the May-June period. The low water crossings were over topped by West Branch flows and tributary flows. The seven low water crossings performed well over all, with the only exception being Low Water Crossing WW7 (see enclosed location map. WW7 experienced some erosion on the downstream slope of the structure (see enclosed photos). The erosion led to some undermining of the concrete blocks and the loss of a few blocks.

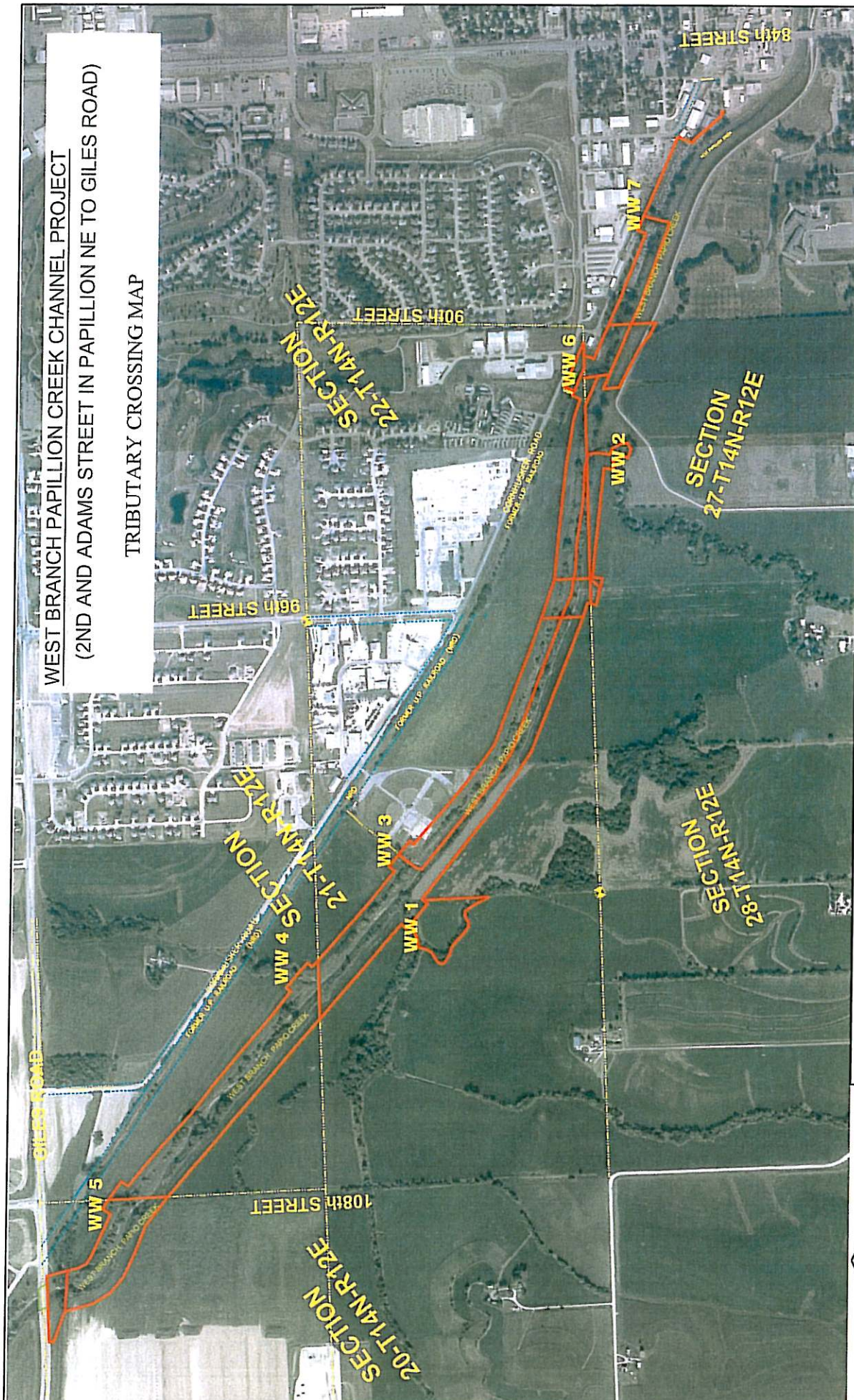
Ehrhart Griffin has prepared two repair options (see enclosed plan sheets). The first option involves adding rock filled gabion at the base of the low water crossing downstream slope and resetting some blocks. The second option involved installing sheet piling at the base of the low water crossing downstream slope and installing a poured in place concrete slab on the lower slope. Enclosed is a bid summary for the January 30, 2009 bid opening. Five bids were received and the apparent low bid of \$22,295 is from Jochim Precast Concrete.

This work will be funded via West Branch Channel Project Contract Work account (Account 0103044479) and as of January 6, 2009, there is \$72,000 left in this account.

- **It is Management's recommendation that the Subcommittee recommend to the Board of Directors that the General Manager be authorized to execute a contract for construction of West Branch Channel Project – Low Water Crossing WW7 Repair Project with Jochim Precast Concrete, for their total base bid of \$22,295 for repair option #2.**

**WEST BRANCH PAPPILLION CREEK CHANNEL PROJECT**  
**(2ND AND ADAMS STREET IN PAPPILLION NE TO GILES ROAD)**

**TRIBUTARY CROSSING MAP**



DESIGNED BY:	EXHIBIT
DRAWN BY: SM & M	WEST BRANCH PAPPILLION CREEK
CHECKED BY: MPC	TRIBUTARY CROSSING MAP
APPROVED BY: LP	
PROJECT NO.: 330	
DATE: 4/7/05	
NO SCALE	
SHEET NO. 1 OF 1	

**PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT**





West Branch Channel Project – 84<sup>th</sup> to Giles Road – Low Water Crossing WW7

Looking Downstream (July 2008)



West Branch Channel Project – 84<sup>th</sup> to Giles Road – Low Water Crossing WW7

Looking Upstream (July 2008)



REPAIR WEST BRANCH  
CHANNEL PROJECT  
BID OPENING - JANUARY 30, 2009

No.		Item Description	Estimated		Jochim Precast		Swain Construction, Inc.		Thompson Construction, Inc.		Heimes Corp.		General Excavating	
			Quantity	Unit	Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total
1		EARTHWORK (EXCAVATION)	61	CY	\$25.00	\$1,525.00	\$26.20	\$1,598.20	\$35.00	\$2,135.00	\$9.27	\$565.47	\$50.00	\$3,050.00
2		TOPSOIL PLACEMENT	33	SY	\$10.00	\$330.00	\$28.80	\$950.40	\$50.00	\$1,650.00	\$26.16	\$863.28	\$60.00	\$1,980.00
3		SUBGRADE PREPARATION	68	SY	\$20.00	\$1,360.00	\$3.91	\$265.88	\$40.00	\$2,720.00	\$21.80	\$1,482.40	\$30.00	\$2,040.00
4		GABION BASKET W/ GEOTEXTILE FABRIC	38	CY	\$500.00	\$19,000.00	\$954.00	\$36,252.00	\$500.00	\$19,000.00	\$724.84	\$27,543.92	\$350.00	\$13,300.00
5		RENET MATTRESS W/ GEOTEXTILE FABRIC	6	CY	\$300.00	\$1,800.00	\$1,000.00	\$6,000.00	\$500.00	\$3,000.00	\$1,300.18	\$7,801.08	\$390.00	\$2,340.00
6		ARTICULATING CONCRETE BLOCK REVETMENT	216	SF	\$25.00	\$5,400.00	\$21.50	\$4,644.00	\$20.00	\$4,320.00	\$56.68	\$12,242.88	\$36.00	\$7,776.00
7		GROUT	3	CY	\$250.00	\$750.00	\$385.00	\$1,155.00	\$300.00	\$900.00	\$201.65	\$604.95	\$580.00	\$1,740.00
8		SEEDING WITH MULCHING AND CRIMPING	0	AC	\$5,000.00	\$0.00	\$50,000.00	\$500.00	\$0.00	\$15,000.00	\$54,500.00	\$545.00	\$26,000.00	\$260.00
9		REBAR ANCHOR WITH ADHESIVE	7	EA	\$100.00	\$700.00	\$88.00	\$616.00	\$75.00	\$525.00	\$130.80	\$915.60	\$110.00	\$770.00
<b>Total Bid - Option 1</b>						<b>\$30,915.00</b>		<b>\$51,981.48</b>		<b>\$34,400.00</b>		<b>\$52,664.58</b>		<b>\$33,256.00</b>

REPAIR WEST BRANCH  
CHANNEL PROJECT  
BID OPENING - JANUARY 30, 2009

BID - OPTION 2		Jochim Precast		Swain Construction, Inc.		Thompson Construction, Inc.		Heimes Corp.		General Excavating			
No.	Item Description	Estimated		Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total		
		Quantity	Unit										
1	EARTHWORK (EXCAVATION)	61	CY	\$25.00	\$1,525.00	\$23.00	\$1,403.00	\$35.00	\$2,135.00	\$9.27	\$565.47	\$50.00	\$3,050.00
2	TOPSOIL PLACEMENT	33	SY	\$10.00	\$330.00	\$25.00	\$825.00	\$50.00	\$1,650.00	\$26.16	\$863.28	\$60.00	\$1,980.00
3	SUBGRADE PREPARATION	51	SY	\$10.00	\$510.00	\$3.00	\$153.00	\$40.00	\$2,040.00	\$21.80	\$1,111.80	\$30.00	\$1,530.00
4	SHEET PILE	1	LS	\$10,000.00	\$10,000.00	\$31,350.00	\$31,350.00	\$15,000.00	\$15,000.00	\$24,000.00	\$24,000.00	\$10,100.00	\$10,100.00
5	6" REINFORCED CONCRETE SLAB	43	SY	\$80.00	\$3,440.00	\$153.00	\$6,579.00	\$125.00	\$5,375.00	\$122.63	\$5,273.09	\$160.00	\$6,880.00
6	CONSTRUCT GROUTED RIP RAP, D50=18"	24	CY	\$60.00	\$1,440.00	\$105.00	\$2,520.00	\$150.00	\$3,600.00	\$286.85	\$6,932.40	\$205.00	\$4,920.00
7	SEEDING WITH MULCHING AND CRIMPING	0.01	AC	\$5,000.00	\$50.00	\$50,000.00	\$500.00	\$15,000.00	\$150.00	\$54,500.00	\$545.00	\$26,000.00	\$260.00
8	MOBILIZATION	1	LS	\$5,000.00	\$5,000.00	\$1,500.00	\$1,500.00	\$3,000.00	\$3,000.00	\$7,500.00	\$7,500.00	\$4,000.00	\$4,000.00
<b>Total Bid - Option 2</b>					<b>\$22,295.00</b>		<b>\$44,830.00</b>		<b>\$32,950.00</b>		<b>\$46,791.04</b>		<b>\$32,720.00</b>



January 30, 2009

Martin Cleveland  
Papio-Missouri River Natural Resources District  
8901 S. 154<sup>th</sup> Street  
Omaha, NE 68138

RE: Papio-Missouri River Natural Resources District  
Repair West Branch Channel Project  
EGA Project No. 081228

Martin,



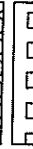
We had a successful bid opening for the Repair West Branch Channel Project. There were a total of five bidders. The lowest bid was by Joehim Precast Concrete Company for Option 2 which came in at \$22,295,00. It is our recommendation that you accept their bid for the work on this project.

Sincerely,

Terry Morrison  
Ehrhart Griffin & Associates


  
 NORTH
   
 SCALE 1" = 10'

**LEGEND**

-  - PROPOSED GABION BASKET
-  - PROPOSED GABION MATTRESS
-  - RELAYED ARTICULATED BLOCK

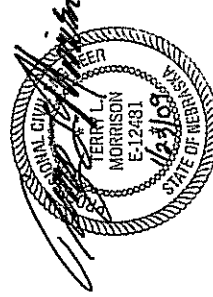
**W7 REPAIR  
OPTION 1 LAYOUT PLAN**

SHEET NO. L01

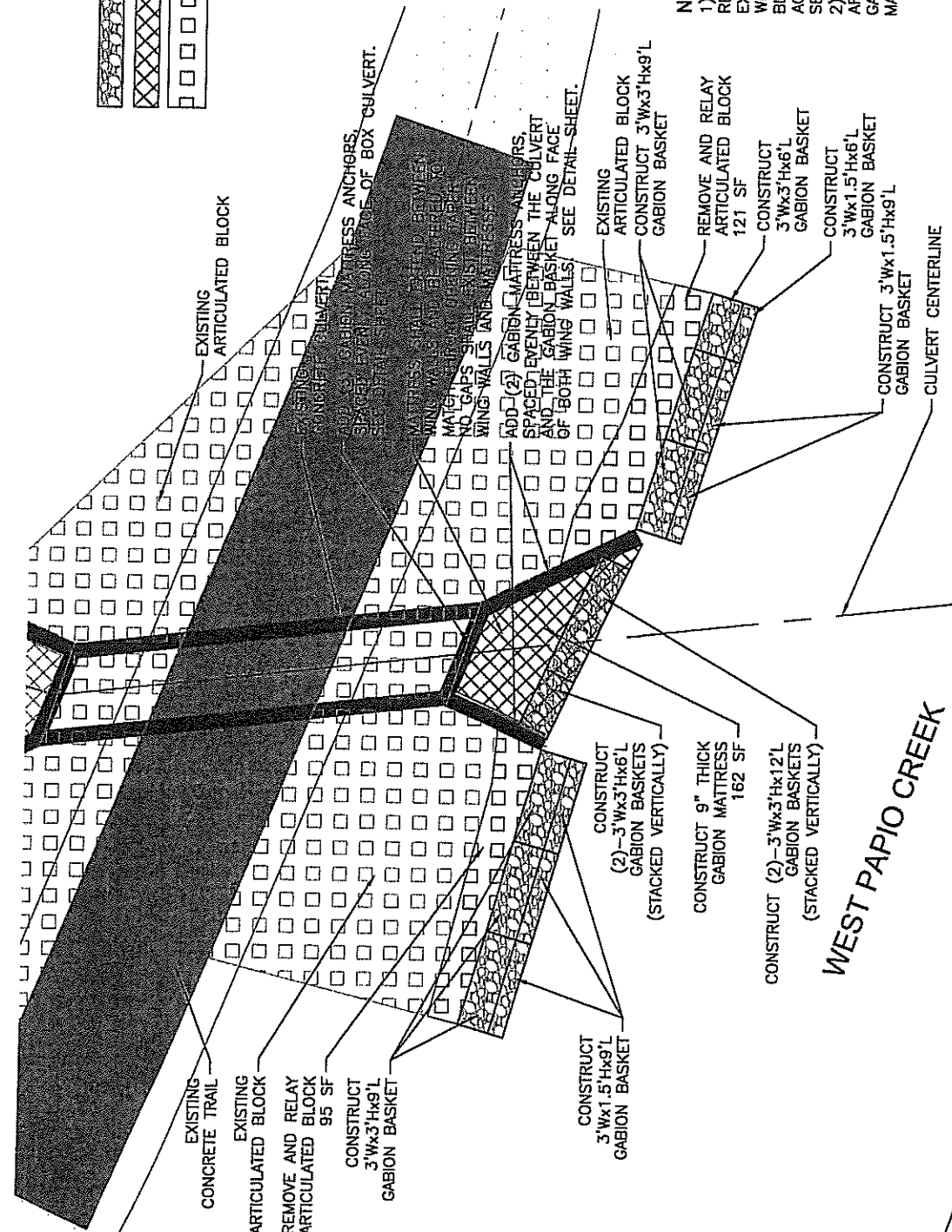
DATE: 10/03/08  
 DESIGNED BY: TLM  
 DRAWN BY: TLM  
 CHECKED BY: DUD

86TH TO GILES ROAD  
 SARPY COUNTY, NEBRASKA

**ERRHART & GRIFFIN ASSOCIATES**  
 ENGINEERING  
 PLANNING  
 LAND SURVEYING  
 TRAFFIC  
 ENGINEERING  
 3552 FARNAH STREET  
 OMAHA, NEBRASKA 68131  
 PHONE: 402-551-0631  
 FAX: 402-551-6540



- NOTES:**
- 1) THE INTENT IS TO REMOVE AND RELAY EXISTING ARTICULATED BLOCK. EXISTING BLOCKS SHOULD BE REUSED WHENEVER POSSIBLE. EXISTING BLOCKS THAT ARE BROKEN OR NOT ACCEPTABLE FOR REUSE SHALL BE SET ASIDE FOR INSPECTION.
  - 2) SEE DETAIL SHEET, DT01, FOR ARTICULATED BLOCK, GABION BASKET, GABION MATTRESS AND GABION MATTRESS ANCHOR DETAILS.

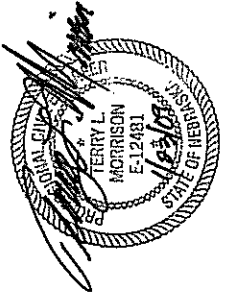




**NORTH**  
SCALE 1" = 20'

**LEGEND**

- - - - - EXISTING CONTOUR
- - - - - PROPOSED CONTOUR
- 6 [996.5] - PROPOSED SPOT ELEVATION
- G - GRADE
- GB - GABION BASKET (TOP)
- GM - GABION MATTRESS (TOP)
- \* - FIELD VERIFY ELEVATION



**GRADING NOTES:**

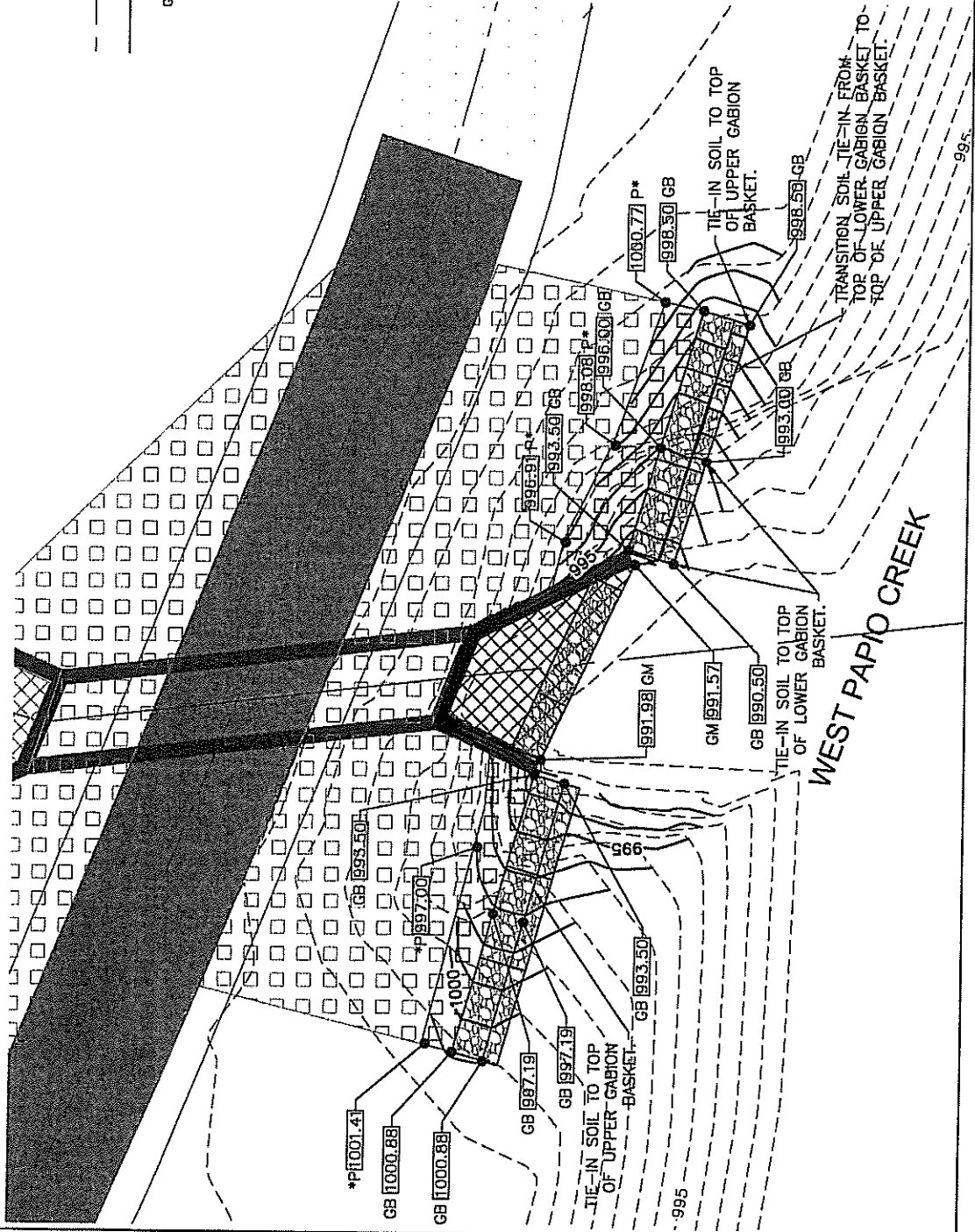
- 1) FILL SHALL BE AS COMPACTED FILL MEETING 95% OF ASTM D-698 (STANDARD PROCTOR).
- 2) GRADE SHALL GRADUALLY TAPER OVER SPOT ELEVATIONS WITHOUT SHARP BREAKS.
- 3) ELEVATIONS SHOWN ARE REFERENCED TO U.S.G.S. DATUM.
- 4) ALL DISTURBED AREAS SHALL BE SEEDED WITH THE NRD NATIVE GRASS MIXTURE AS SHOWN ON THE DETAIL SHEET DETD1.

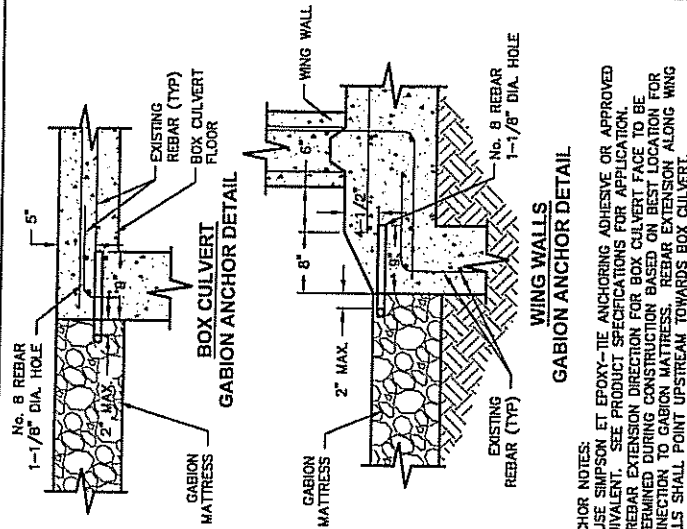
**BENCHMARK:**

THE SURVEY FOR THIS PROJECT WAS SUPPLIED BY THE PAPIO-MISSOURI RIVER NATURAL RESOURCES DEPARTMENT.

SHEET NO. GR01	DATE: 10/03/08 DRAWN BY: TLM CHECKED BY: DJD	68TH TO GILES ROAD SARPY COUNTY, NEBRASKA	EHRHART & GRIFFIN ASSOCIATES ENGINEERING PLANNING LAND SURVEYING TRAFFIC ENGINEERING 3552 FARNHAM STREET OMAHA, NEBRASKA 68131 PHONE: 402-951-0631 FAX: 402-951-6540
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**WW7 REPAIR OPTION 1 GRADING PLAN**



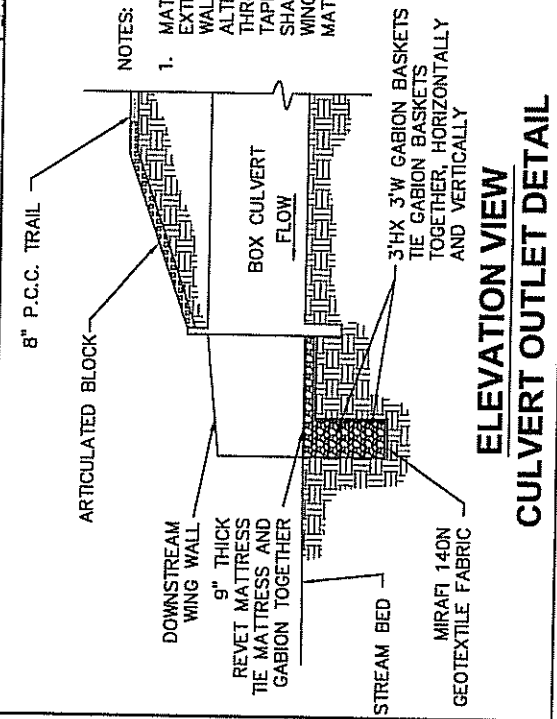


**ELEVATION VIEW  
ARTICULATED BLOCK DETAIL**

**SEED MIXTURE SHALL BE AS FOLLOWS:**

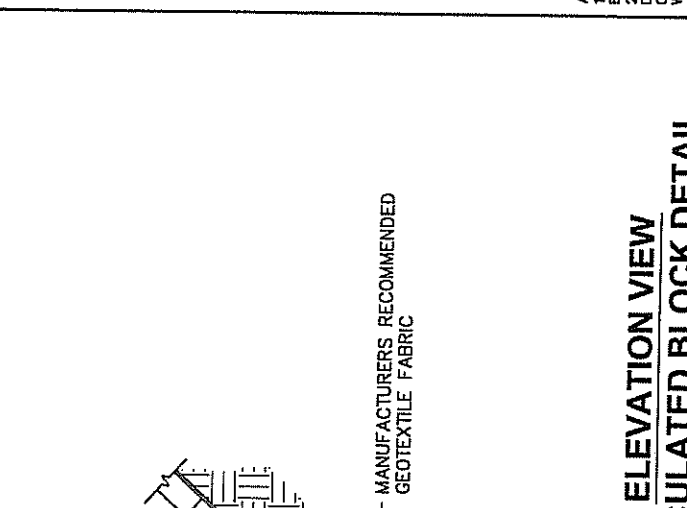
SPECIES	LBS. OF PURE LIVE SEED PER ACRE
LITTLE BLUESTEM	2.50
SIDEOATS GRAMA	3.30
BLUE GRAMA	0.80
WESTERN WHEATGRASS	4.00
VIRGINIA WILDRYE	1.70
CANADA WILDRYE	5.70
SWITCH GRASS	1.50
TALL FESCUE	10.0
OATS	50.0 (NOT PURE LIVE SEED)

ALL SEED SPECIFIED FOR THIS PROJECT SHALL BE THOROUGHLY MIXED PRIOR TO PLACING THE SEED IN THE SEED HOPPER. ALL SEED SHALL BE MIXED AT THE PROJECT SITE.

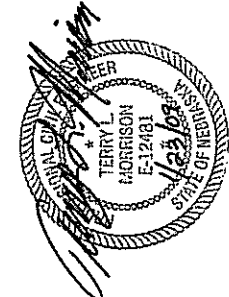
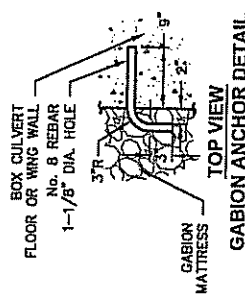


**ELEVATION VIEW  
CULVERT OUTLET DETAIL**

NOTES:  
1. MATTRESS SHALL EXTEND BETWEEN WING WALLS AND BE ALTERED TO MATCH THROAT OPENING TAPER. NO GAPS SHALL EXIST BETWEEN WING WALLS AND MATTRESSES.



**ANCHOR NOTES:**  
1) USE SIMPSON ET EPOXY-TIE ANCHORING ADHESIVE OR APPROVED EQUIVALENT. SEE PRODUCT SPECIFICATIONS FOR APPLICATION.  
2) REBAR EXTENSION DIRECTION FOR BOX CULVERT FACE TO BE DETERMINED DURING CONSTRUCTION BASED ON BEST LOCATION FOR CONNECTION TO GABION MATTRESS. REBAR EXTENSION ALONG WING WALLS SHALL POINT UPSTREAM TOWARDS BOX CULVERT.  
3) CONTRACTOR SHALL REVIEW LAYOUT FOR NEAR STANDARD.



**EHRHART & GRIFFIN ASSOCIATES**  
ENGINEERING  
PLANNING  
LAND SURVEYING  
TRAFFIC ENGINEERING

3522 FARNAH STREET  
DHAHA, NEBRASKA 68131  
PHONE: 402-551-6531  
FAX: 402-551-6540


DATE: 10/03/08  
DRAWN BY: TLM  
CHECKED BY: DJD

68TH TO GILES ROAD  
SARPY COUNTY, NEBRASKA



**WW7 REPAIR  
OPTION 1 DETAILS**

SHEET NO. DET01

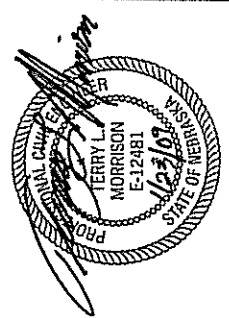
**NORTH**  
SCALE 1" = 10'



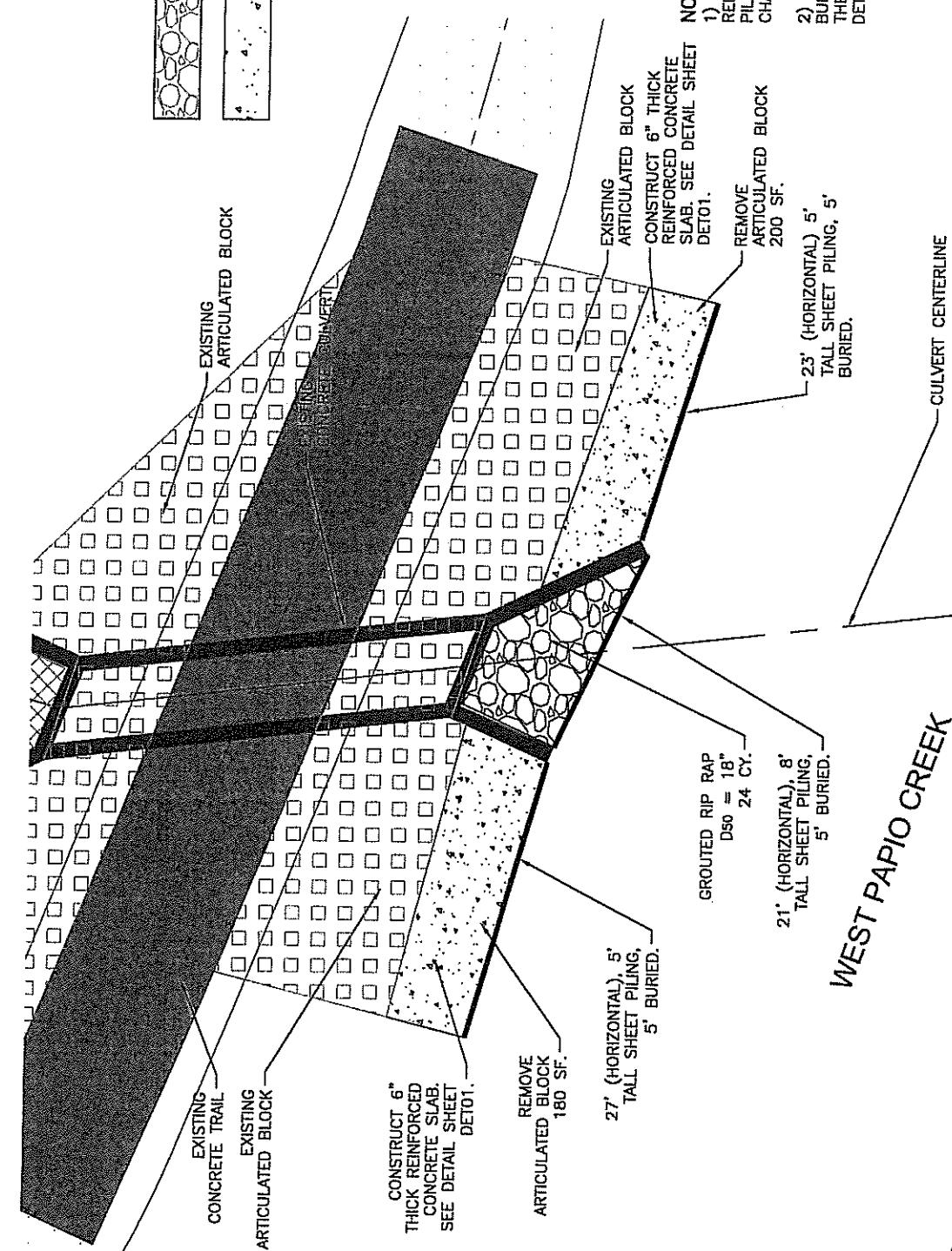
**LEGEND**

-  - PROPOSED RIP RAP
-  - PROPOSED 6" REINFORCED CONCRETE SLAB

**W7 REPAIR  
OPTION 2 LAYOUT PLAN**



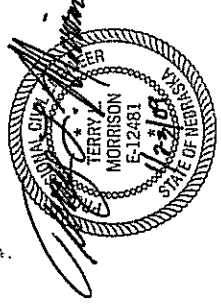
- NOTES:**
- 1) SEE DETAIL SHEET DTO1 FOR REINFORCED CONCRETE SLAB, SHEET PILING, RIP RAP AND LOW FLOW CHANNEL DETAILS.
  - 2) A LOW FLOW CHANNEL SHALL BE BUILT IN THE SHEET PILING BETWEEN THE WING WALLS. SEE DETAIL SHEET DTO1.



NORTH  
SCALE 1" = 20'

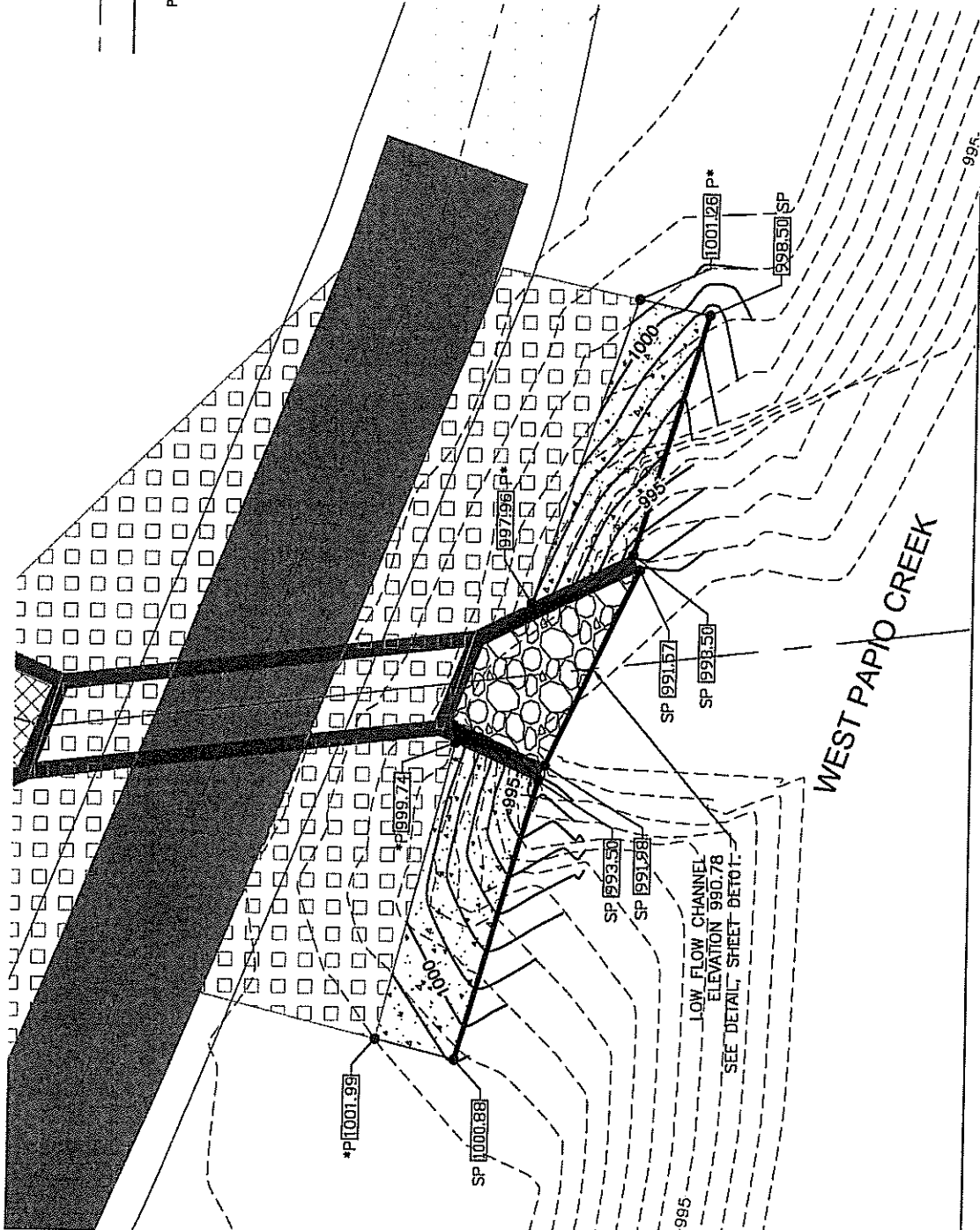
**LEGEND**

- - - EXISTING CONTOUR
- - - PROPOSED CONTOUR
- PL [995.5] - PROPOSED SPOT ELEVATION
- P - PAVEMENT
- SP - SHEET PILING (TOP)
- \* - FIELD VERIFY ELEVATION



**GRADING NOTES:**  
1) FILL SHALL BE AS COMPACTED FILL MEETING 95% OF ASTM D-698 (STANDARD PROCTOR).  
2) GRADE SHALL GRADUALLY TAPER OVER SPOT ELEVATIONS WITHOUT SHARP BREAKS.  
3) ELEVATIONS SHOWN ARE REFERENCED TO U.S.G.S. DATUM.  
4) ALL DISTURBED AREAS SHALL BE SEEDED WITH THE NRD NATIVE GRASS MIXTURE AS SHOWN ON THE DETAIL SHEET DETO1.

**BENCHMARK:**  
THE SURVEY FOR THIS PROJECT WAS SUPPLIED BY THE PAPIO-MISSOURI RIVER NATURAL RESOURCES DEPARTMENT.



SHEET NO. GR01

DATE: 01/09/09  
DRAWN BY: TLM  
CHECKED BY: DJD

SARPY COUNTY, NEBRASKA

**EHRHART & GRIFFIN ASSOCIATES**  
3922 FARNAH STREET  
OMAHA, NEBRASKA 68131  
PHONE: 402-551-0631  
FAX: 402-551-6540

- ENGINEERING
- PLANNING
- LAND SURVEYING
- TRAFFIC

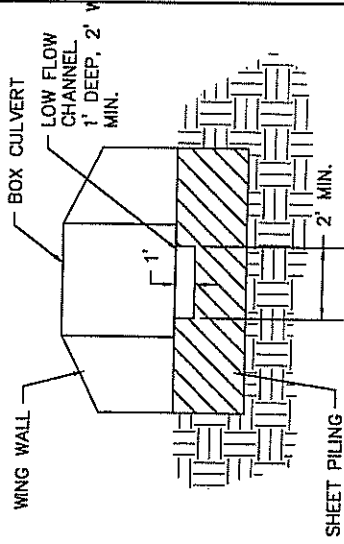
DET01  
SHEET NO.

DATE: 01/09/09  
DESIGNED BY: TLM  
DRAWN BY: TLM  
CHECKED BY: DJD

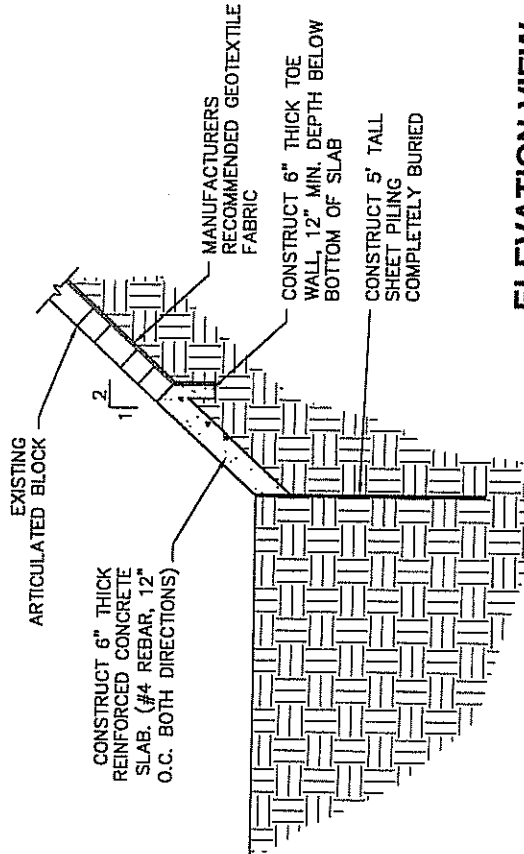
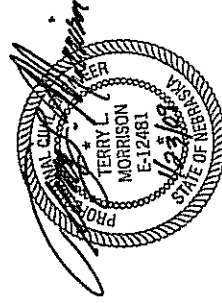
SAPRY COUNTY, NEBRASKA  
86TH TO GILES ROAD

**EHRHART & GRIFFIN ASSOCIATES**  
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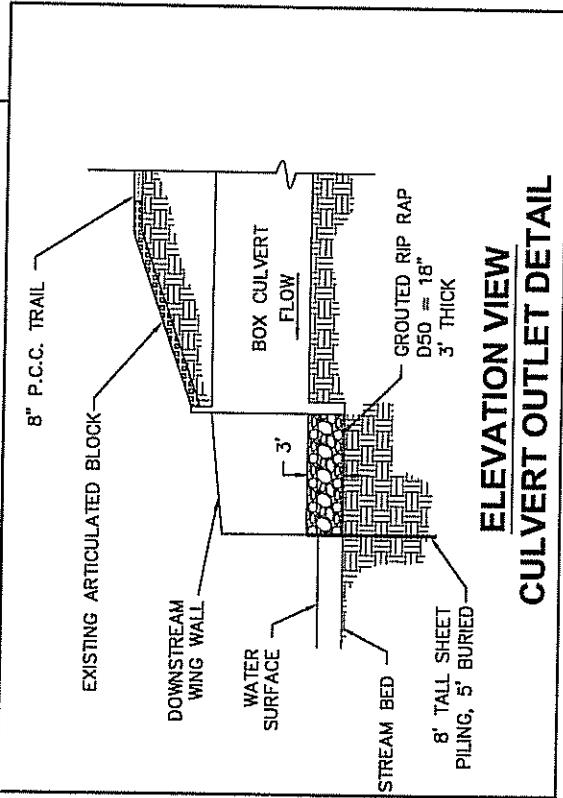
**W77 REPAIR  
OPTION 2 DETAILS**



**LOW FLOW CHANNEL  
DETAIL**



**ELEVATION VIEW  
6" CONCRETE SLAB DETAIL**



**ELEVATION VIEW  
CULVERT OUTLET DETAIL**

**SEED MIXTURE SHALL BE AS FOLLOWS:**

SPECIES	LBS. OF PURE LIVE SEED PER ACRE
LITTLE BLUESTEM	2.50
SIDEOATS GRAMA	3.30
BLUE GRAMA	0.80
WESTERN WHEATGRASS	4.00
VIRGINIA WILDRYE	1.70
CANADA WILDRYE	5.70
SWITCH GRASS	1.50
TALL FESCUE	10.0
OATS	50.0 (NOT PURE LIVE SEED)

ALL SEED SPECIFIED FOR THIS PROJECT SHALL BE THOROUGHLY MIXED PRIOR TO PLACING THE SEED IN THE SEED HOPPER. ALL SEED SHALL BE MIXED AT THE PROJECT SITE.