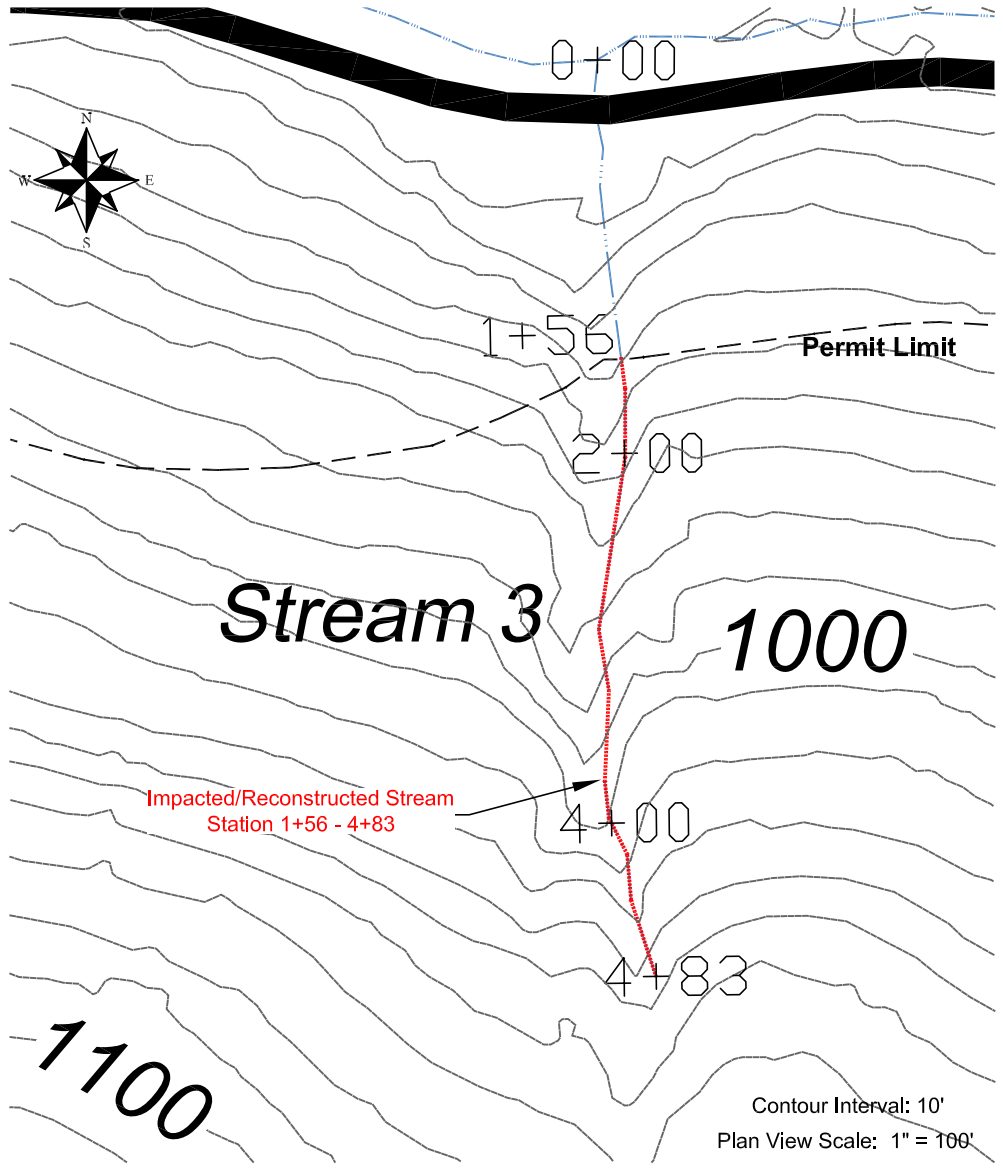
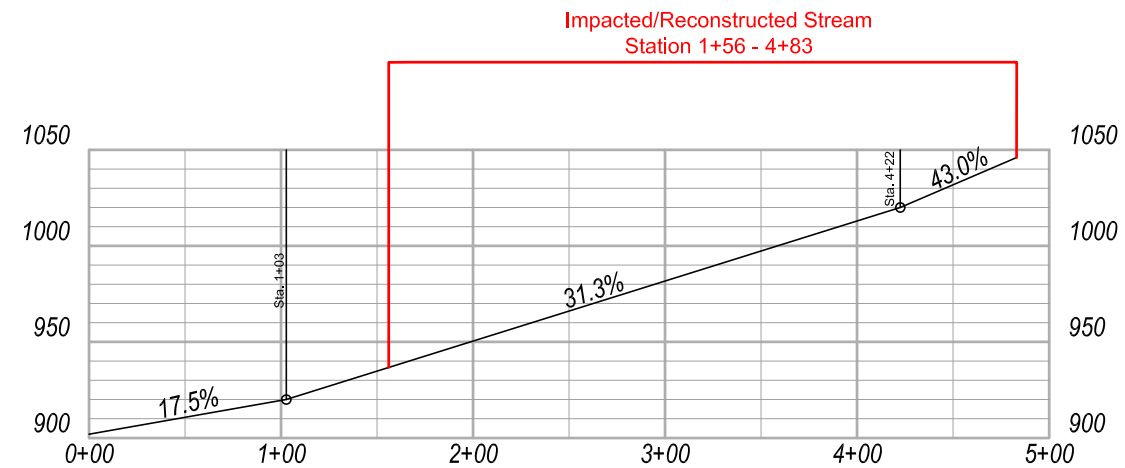




Stream 3 Profile

Scale: 1" = 100'

NORMAL HIGH WATER

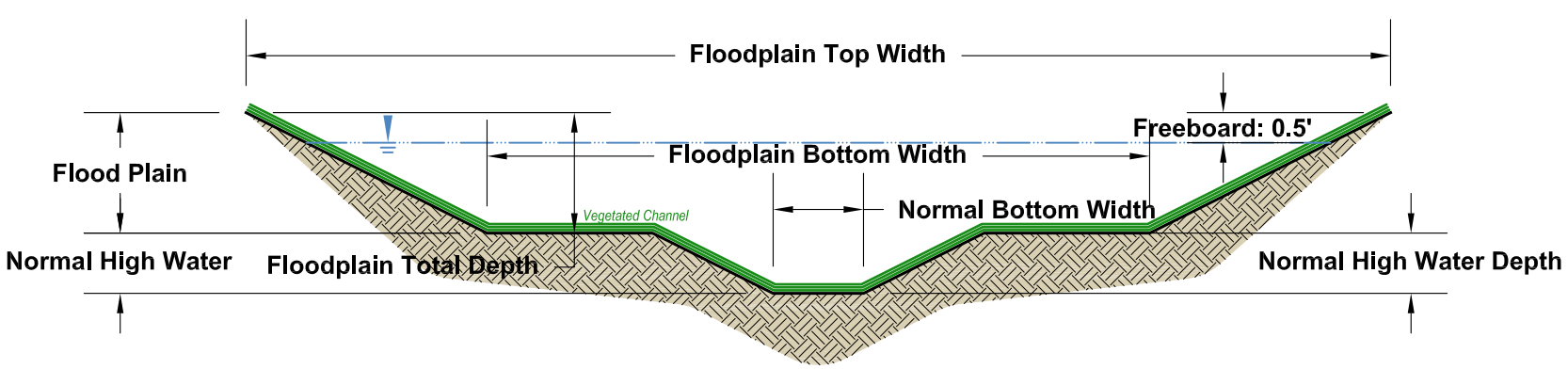
Stream Channel	*Channel Reconstruction Stations*	*Curve Number*	*Drainage Area (Acres)*	*Design Storm*	*Design Flow (cfs)*	*Design Slope*	*Side Slopes*	*Flow Depth*	*Bottom Width*	*Freeboard*	*Total Depth*	*Top Width*	*Velocity (Ft./Sec.)*	*Channel Lining*
Stream 3	1+56 to 4+22	71	9.6	1.5 y/6 h	4.2	31.3%	2:1	0.5'	2'	N/A	0.5'	4.0'	2.8	Vegetation
	4+22 to 4+83	71	7.8	1.5 y/6 h	3.4	43.0%	2:1	0.4'	2'	N/A	0.4'	3.7'	2.8	Vegetation

FLOOD PLAIN

Stream Channel	*Channel Reconstruction Stations*	*Curve Number*	*Drainage Area (Acres)*	*Design Storm*	*Design Flow (cfs)*	*Design Slope*	*Side Slopes*	*Flow Depth*	*Bottom Width*	*Freeboard*	*Total Depth*	*Top Width**	*Velocity (Ft./Sec.)*	*Channel Lining*
Stream 3	1+56 to 4+22	71	9.6	100 y/6 h	21.8	31.3%	2:1	0.4'	12.0'	0.5'	0.9'	15.8'	3.8	Vegetation
	4+22 to 4+83	71	7.8	100 y/6 h	17.7	43.0%	2:1	0.4'	12.0'	0.5'	0.9'	15.5'	3.7	Vegetation

** Measured including freeboard.*

Stream Channel	*Impacted Channel Stations*	*Impacted Channel Length*	*Reconstructed Channel Stations*	*Reconstructed Channel Length*
Stream 3	1+56 to 4+22	266'	1+56 to 4+22	266'
	4+22 to 4+83	61'	4+22 to 4+83	61'
		327'		327'



Vegetated Stream Channel with Vegetated Floodplain

Not To Scale

STATE OF OHIO
REGISTERED
MICHAEL S. KEARNS
#46650
Professional Engineer

Michael S. Kearns P.E., M.S. Date

Addendum to Part 3, Item H(4)

Oxford Mining Company, LLC

Pasco Surface Mine Site
Stream 3 Reconstruction Plan

Jack A. HAMILTON & Associates, Inc.
342 High St., Box 471
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DATE	02/15/2011
COMM. NO.	861-95

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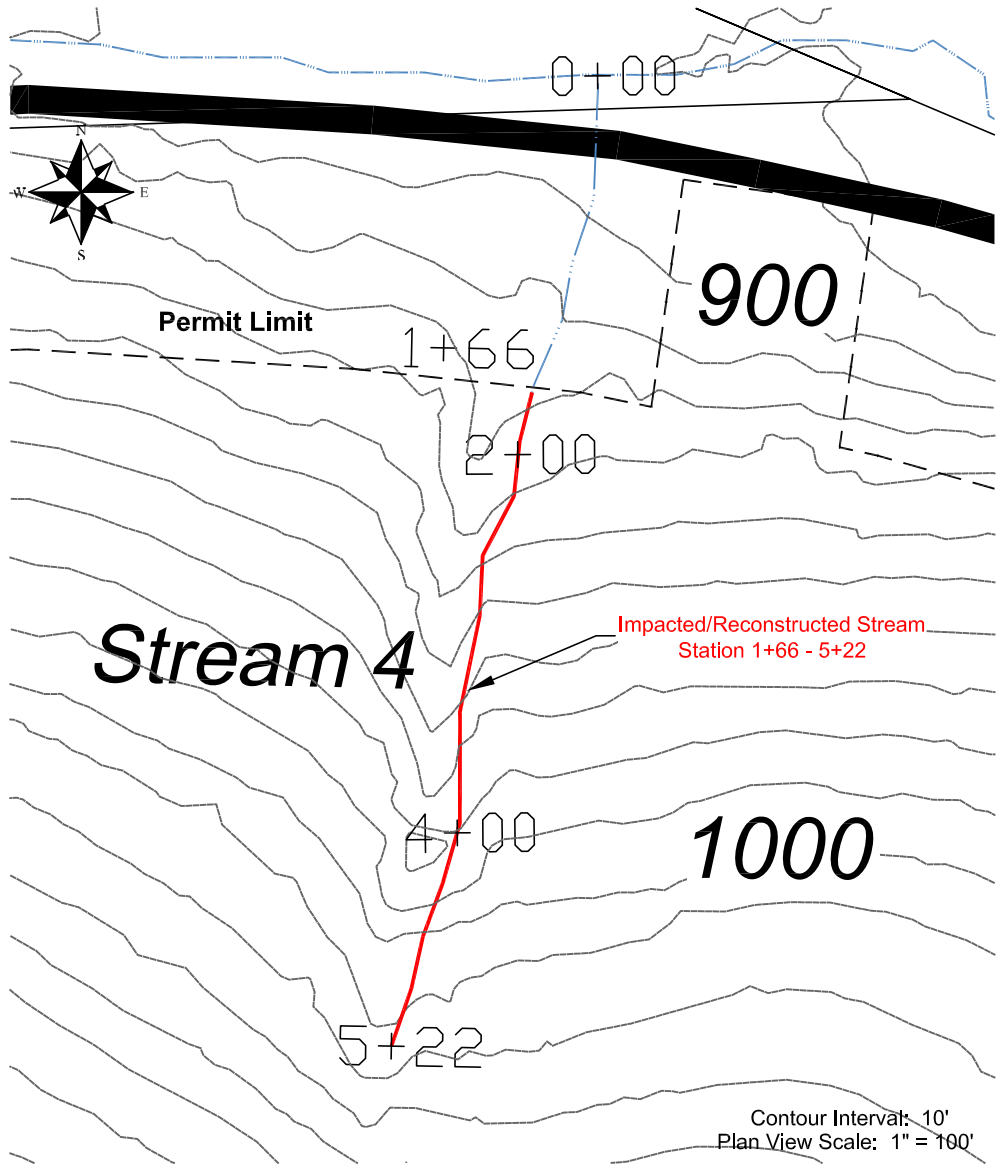
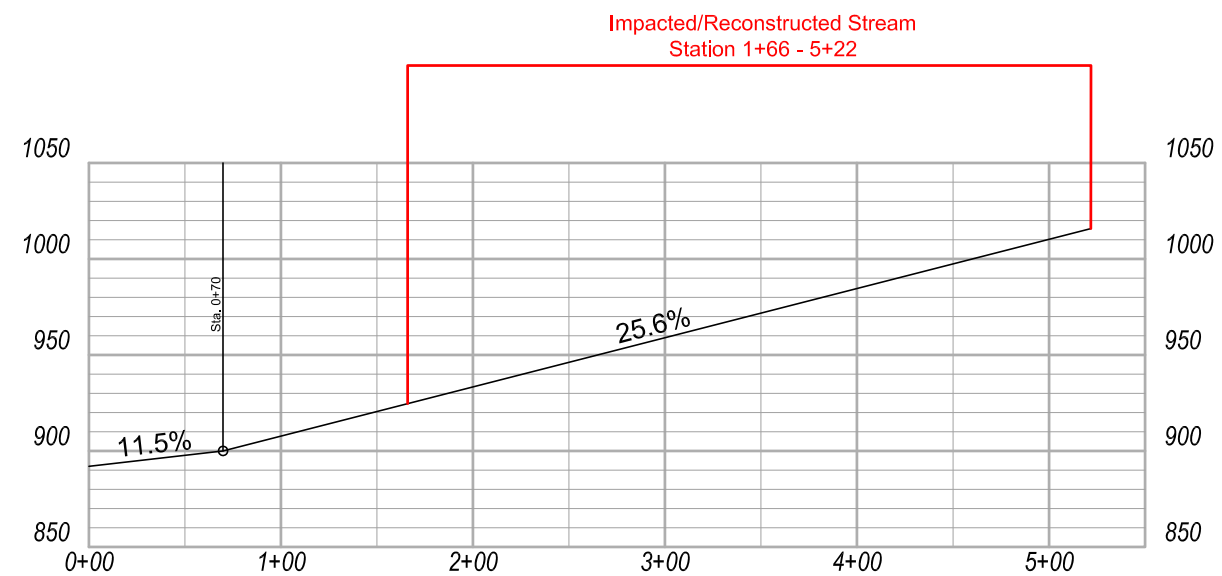




Stream 4 Profile

Scale: 1" = 100'

NORMAL HIGH WATER

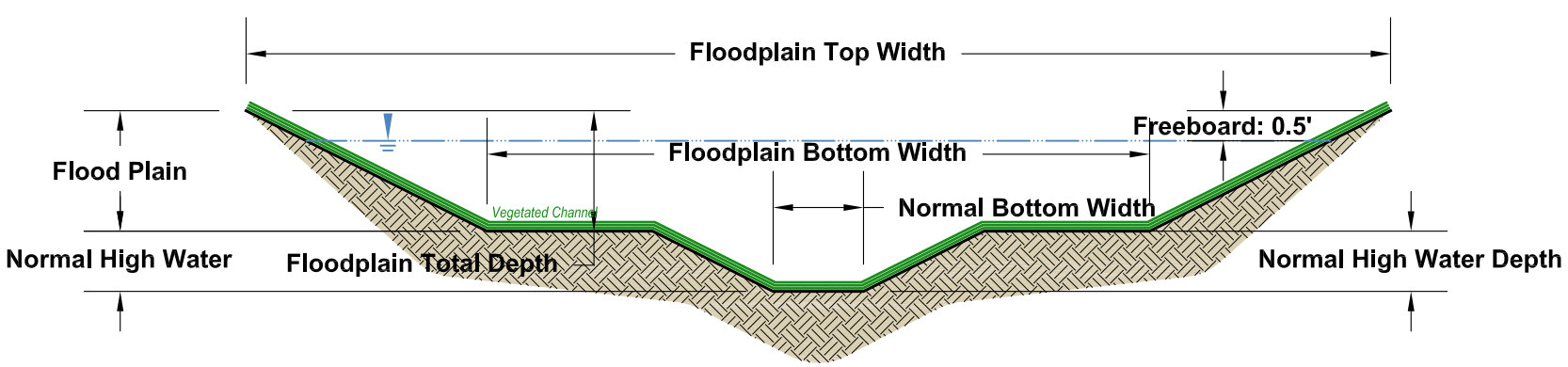
Stream Channel	Channel Reconstruction Stations	Curve Number	Drainage Area (Acres)	Design Storm	Design Flow (cfs)	Design Slope	Side Slopes	Flow Depth	Bottom Width	Freeboard	Total Depth	Top Width	Velocity (Ft./Sec.)	Channel Lining
Stream 4	1+66 to 5+22	71	8.1	1.5 y/6 h	3.6	25.6%	2:1	0.5'	2'	N/A	0.5'	4.1'	2.3	Vegetation

FLOOD PLAIN

Stream Channel	Channel Reconstruction Stations	Curve Number	Drainage Area (Acres)	Design Storm	Design Flow (cfs)	Design Slope	Side Slopes	Flow Depth	Bottom Width	Freeboard	Total Depth	Top Width*	Velocity (Ft./Sec.)	Channel Lining
Stream 4	1+66 to 5+22	71	8.1	100 y/6 h	18.4	25.6%	2:1	0.5'	12.0'	0.5'	1.0'	15.8'	3.2	Vegetation

** Measured including freeboard.*

Stream Channel	Impacted Channel Stations	Impacted Channel Length	Reconstructed Channel Stations	Reconstructed Channel Length
Stream 4	1+66 to 5+22	356'	1+66 to 5+22	356'
		356'		356'



Vegetated Stream Channel with Vegetated Floodplain

Not To Scale

STATE OF OHIO
REGISTERED
MICHAEL S. KEARNS
#46650
Professional Engineer

Michael S. Kearns P.E., M.S. Date

Addendum to Part 3, Item H(4)

Oxford Mining Company, LLC

Pasco Surface Mine Site
Stream 4 Reconstruction Plan

Jack A. HAMILTON & Associates, Inc.
342 High St., Box 471
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Ph: (740) 968-4947
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DATE	02/15/2011
COMM. NO.	861-95

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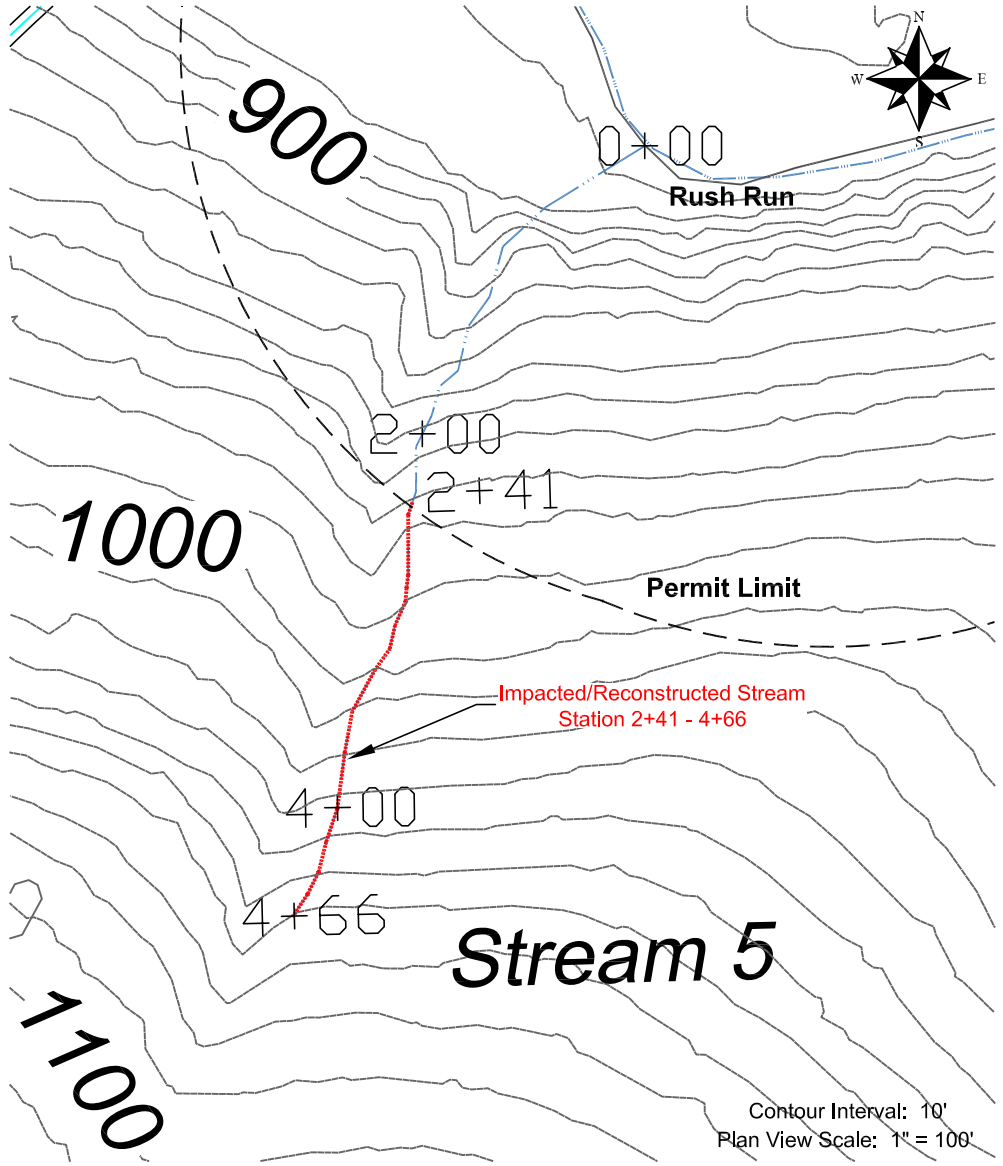
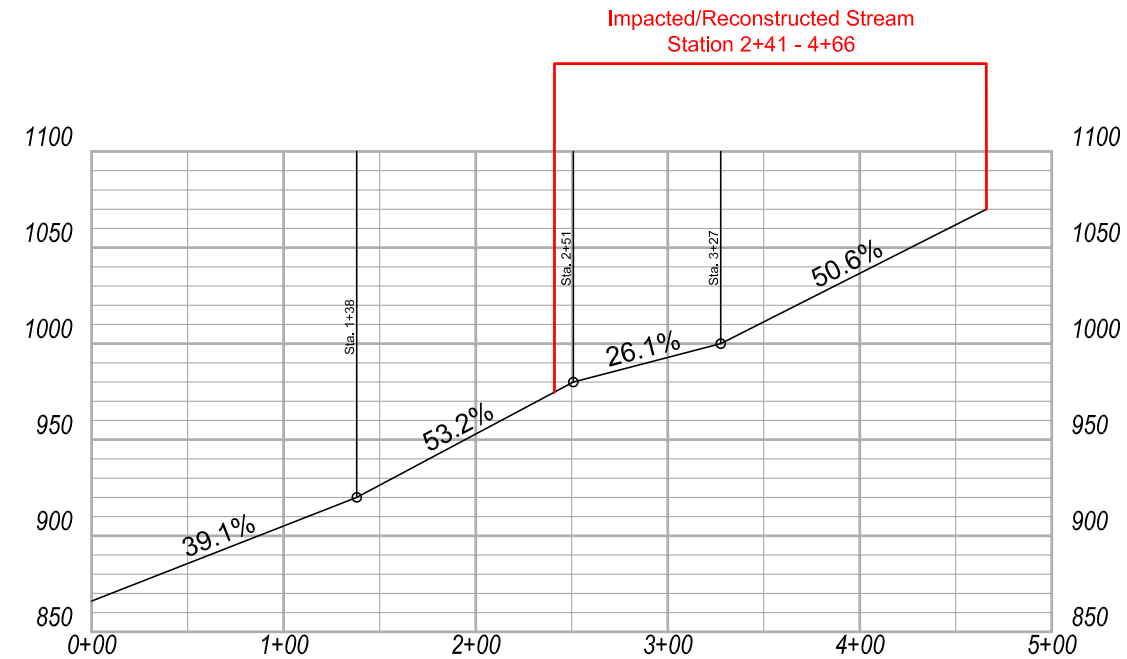




Stream 5

Scale: 1" = 100'

NORMAL HIGH WATER

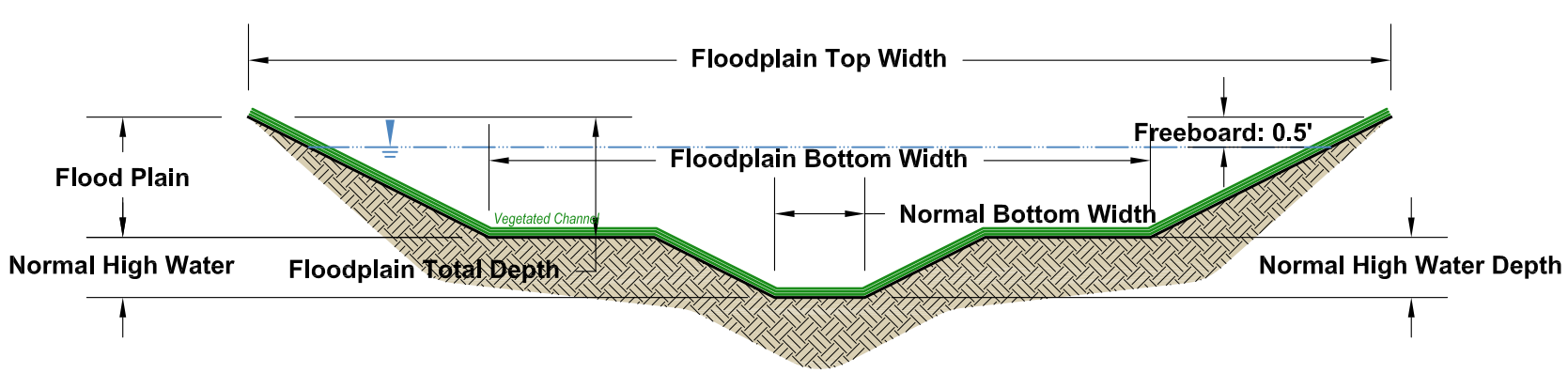
Stream Channel	*Channel Reconstruction Stations*	*Curve Number*	*Drainage Area (Acres)*	*Design Storm*	*Design Flow (cfs)*	*Design Slope*	*Side Slopes*	*Flow Depth*	*Bottom Width*	*Freeboard*	*Total Depth*	*Top Width*	*Velocity (Ft./Sec.)*	*Channel Lining*
Stream 5	2+41 to 2+51	71	7.7	1.5 y/6 h	3.4	53.2%	2:1	0.4'	2'	N/A	0.4'	3.6'	3.0	Vegetation
	2+51 to 3+47	71	7.7	1.5 y/6 h	3.4	26.1%	2:1	0.5'	2'	N/A	0.5'	4.0'	2.2	Vegetation
	3+47 to 4+66	71	7.7	1.5 y/6 h	3.4	50.6%	2:1	0.5'	2'	N/A	0.4'	3.6'	2.9	Vegetation

FLOOD PLAIN

Stream Channel	*Channel Reconstruction Stations*	*Curve Number*	*Drainage Area (Acres)*	*Design Storm*	*Design Flow (cfs)*	*Design Slope*	*Side Slopes*	*Flow Depth*	*Bottom Width*	*Freeboard*	*Total Depth*	*Top Width**	*Velocity (Ft./Sec.)*	*Channel Lining*
	2+41 to 2+51	71	7.7	100 y/6 h	17.5	53.2%	2:1	0.4'	12.0'	0.5'	0.9'	15.4'	3.9	Vegetation
	2+51 to 3+47	71	7.7	100 y/6 h	17.5	26.1%	2:1	0.4'	12.0'	0.5'	0.9'	15.8'	3.1	Vegetation
	3+47 to 4+66	71	7.7	100 y/6 h	17.5	50.6%	2:1	0.4'	12.0'	0.5'	0.9'	15.4'	3.9	Vegetation

** Measured including freeboard.*

Stream Channel	*Impacted Channel Stations*	*Impacted Channel Length*	*Reconstructed Channel Stations*	*Reconstructed Channel Length*
Stream 3	2+41 to 2+51	10'	2+41 to 2+51	10'
	2+51 to 3+47	96'	2+51 to 3+47	96'
	3+47 to 4+66	119'	3+47 to 4+66	119'
		225'		225'



Vegetated Stream Channel with Vegetated Floodplain

Not To Scale

STATE OF OHIO
REGISTERED
MICHAEL S. KEARNS
#46650
Professional Engineer

Michael S. Kearns P.E., M.S. Date

Addendum to Part 3, Item H(4)

Oxford Mining Company, LLC

Pasco Surface Mine Site
Stream 5 Reconstruction Plan

Jack A. HAMILTON & Associates, Inc.
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Flushing, Ohio 43977
Ph: (740) 968-4947
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e-mail: hamilton@1st.net
www.hamiltonandassoc.com

REVISIONS

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DATE	02/15/2011
COMM. NO.	861-95

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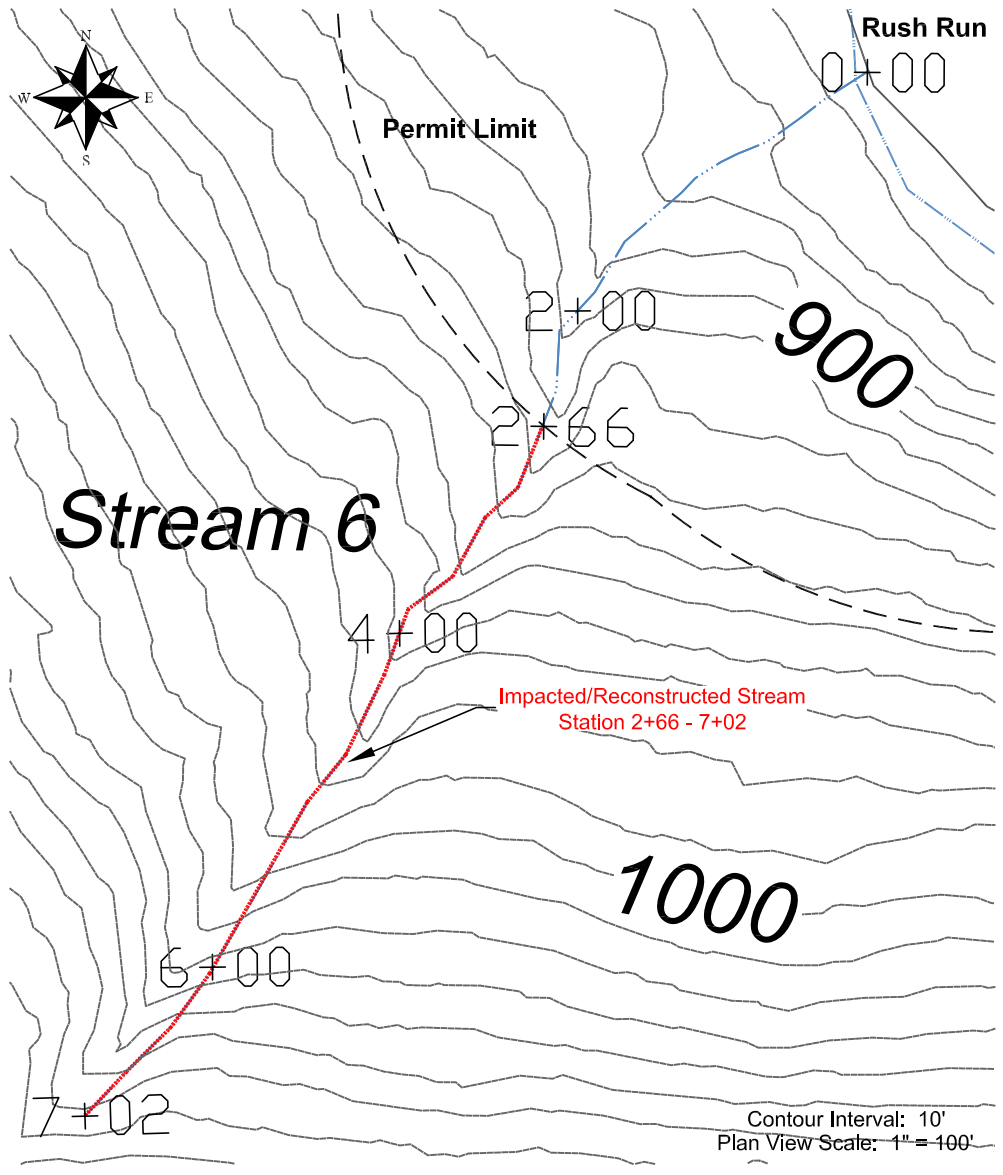
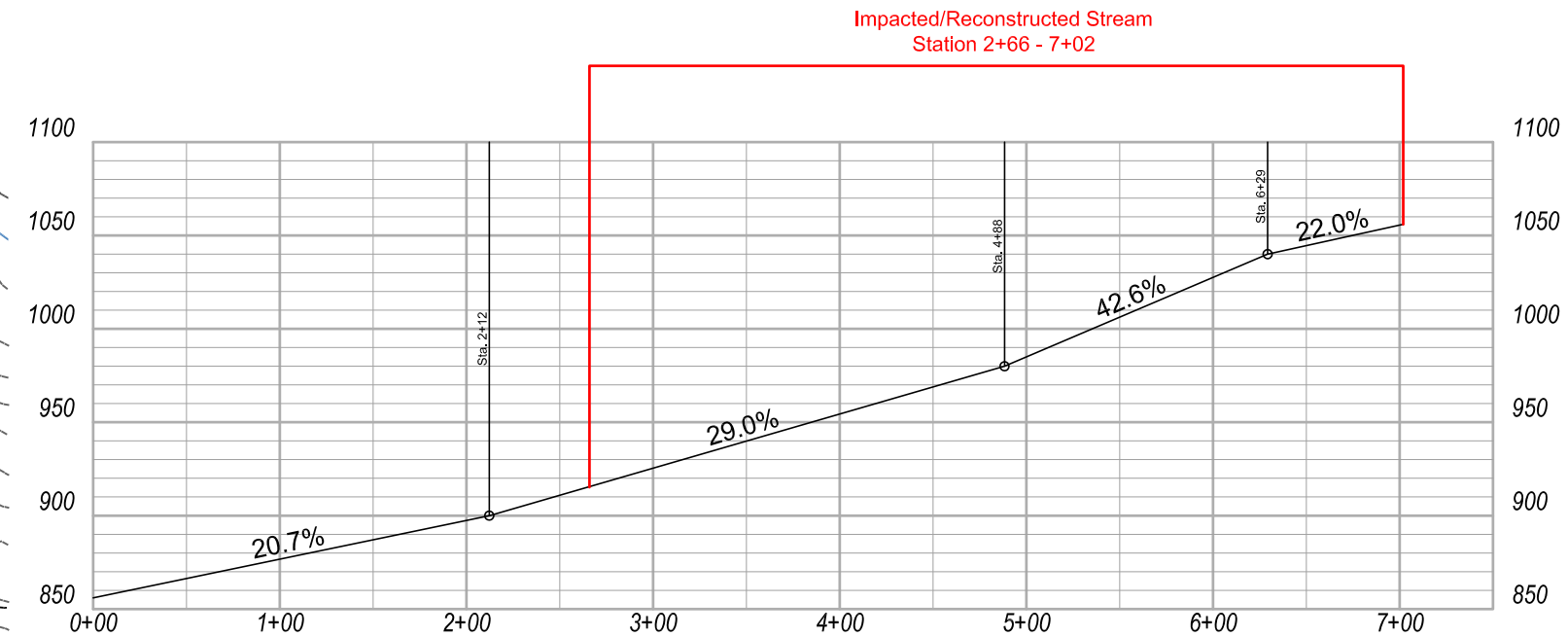




Stream 6 Profile

Scale: 1" = 100'

NORMAL HIGH WATER

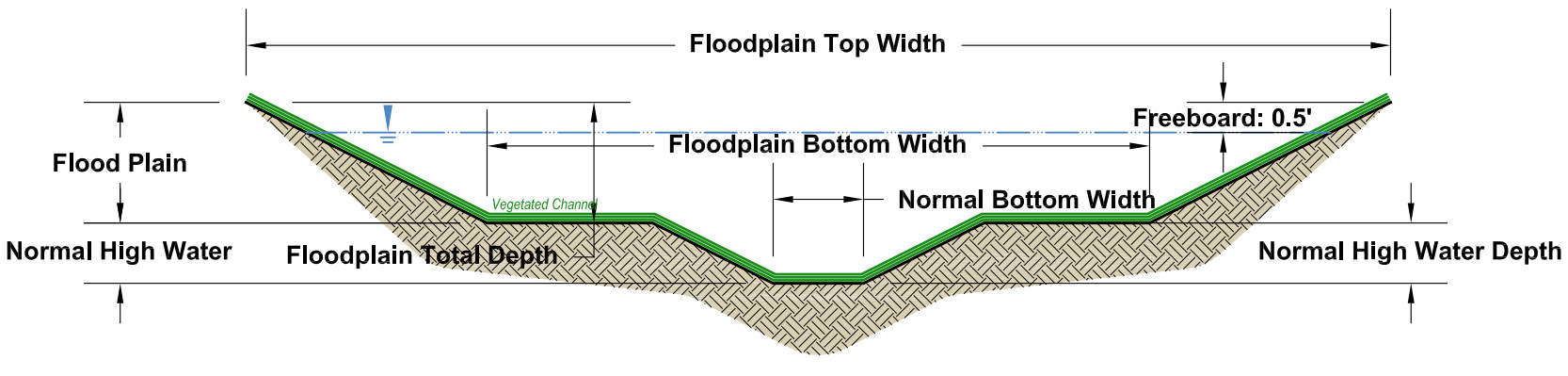
Stream Channel	Channel Reconstruction Stations	Curve Number	Drainage Area (Acres)	Design Storm	Design Flow (cfs)	Design Slope	Side Slopes	Flow Depth	Bottom Width	Freeboard	Total Depth	Top Width	Velocity (Ft./Sec.)	Channel Lining
Stream 5	2+66 to 4+88	71	11.2	1.5 y/6 h	4.9	29.0%	2:1	0.5'	2'	N/A	0.5'	4.2'	2.9	Vegetation
	4+88 to 6+29	71	7.5	1.5 y/6 h	3.3	42.6%	2:1	0.4'	2'	N/A	0.4'	3.7'	2.7	Vegetation
	6+29 to 7+02	71	5.3	1.5 y/6 h	2.3	22.0%	2:1	0.5'	2'	N/A	0.5'	3.9'	1.7	Vegetation

FLOOD PLAIN

Stream Channel	Channel Reconstruction Stations	Curve Number	Drainage Area (Acres)	Design Storm	Design Flow (cfs)	Design Slope	Side Slopes	Flow Depth	Bottom Width	Freeboard	Total Depth	Top Width*	Velocity (Ft./Sec.)	Channel Lining
Stream 5	2+66 to 4+88	71	11.2	100 y/6 h	25.5	29.0%	2:1	0.5'	12.0'	0.5'	1.0'	15.9'	3.0	Vegetation
	4+88 to 6+29	71	7.5	100 y/6 h	17.1	42.6%	2:1	0.4'	12.0'	0.5'	0.9'	15.5'	3.6	Vegetation
	6+29 to 7+02	71	5.3	100 y/6 h	12.1	22.0%	2:1	0.4'	12.0'	0.5'	0.9'	15.7'	2.3	Vegetation

** Measured including freeboard.*

Stream Channel	Impacted Channel Stations	Impacted Channel Length	Reconstructed Channel Stations	Reconstructed Channel Length
Stream 5	2+66 to 4+88	222'	2+66 to 4+88	222'
	4+88 to 6+29	141'	4+88 to 6+29	141'
	6+29 to 7+02	73'	6+29 to 7+02	73'
		436'		436'



Vegetated Stream Channel with Vegetated Floodplain

Not To Scale

STATE OF OHIO
REGISTERED
MICHAEL S. KEARNS
#46650
Professional Engineer

Michael S. Kearns P.E., M.S. Date

Addendum to Part 3, Item H(4)

Oxford Mining Company, LLC

Pasco Surface Mine Site
Stream 6 Reconstruction Plan

Jack A. HAMILTON & Associates, Inc.
342 High St., Box 471
Flushing, Ohio 43977
Ph: (740) 968-4947
Fax: (740) 968-4225
e-mail: hamilton@1st.net
www.hamiltonandassoc.com

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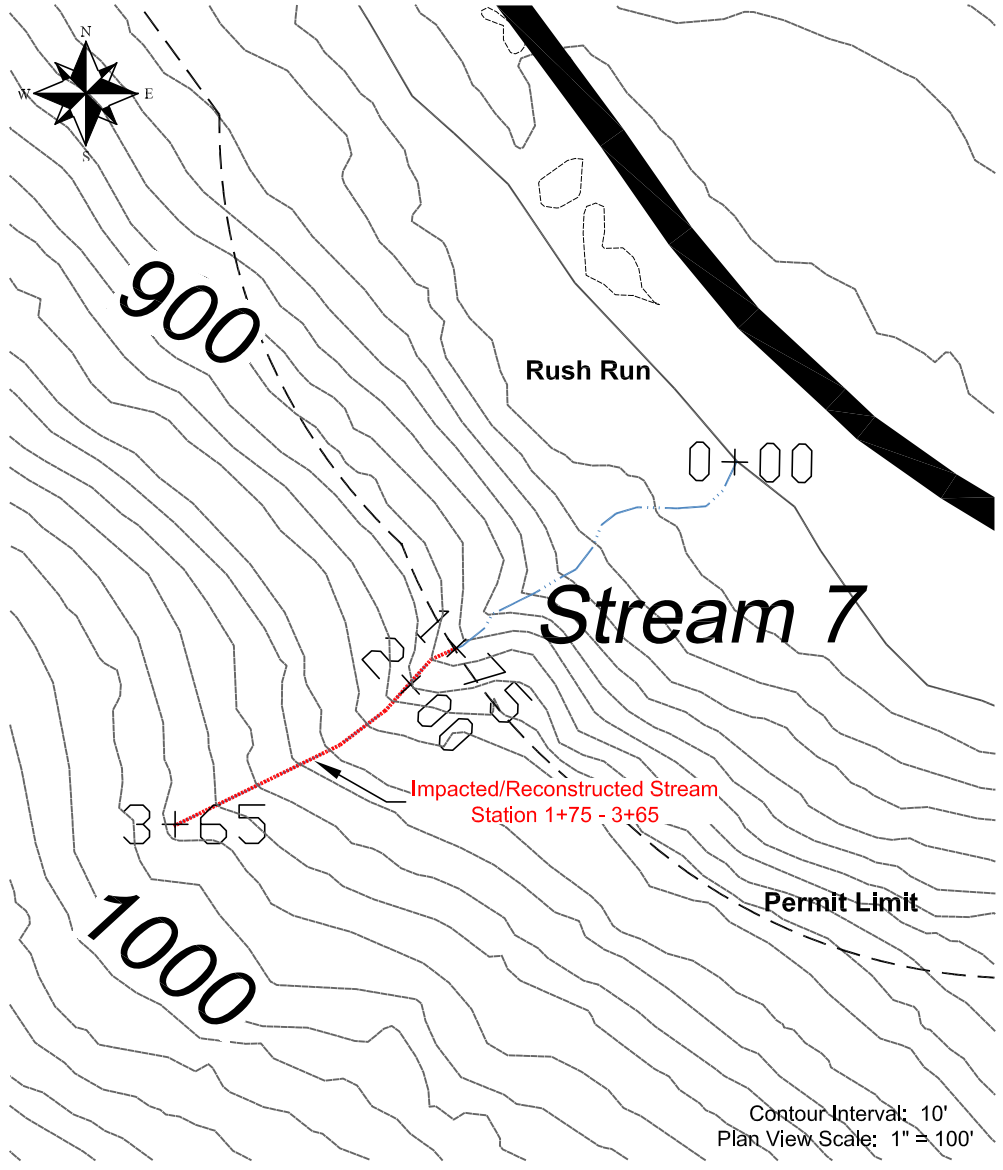
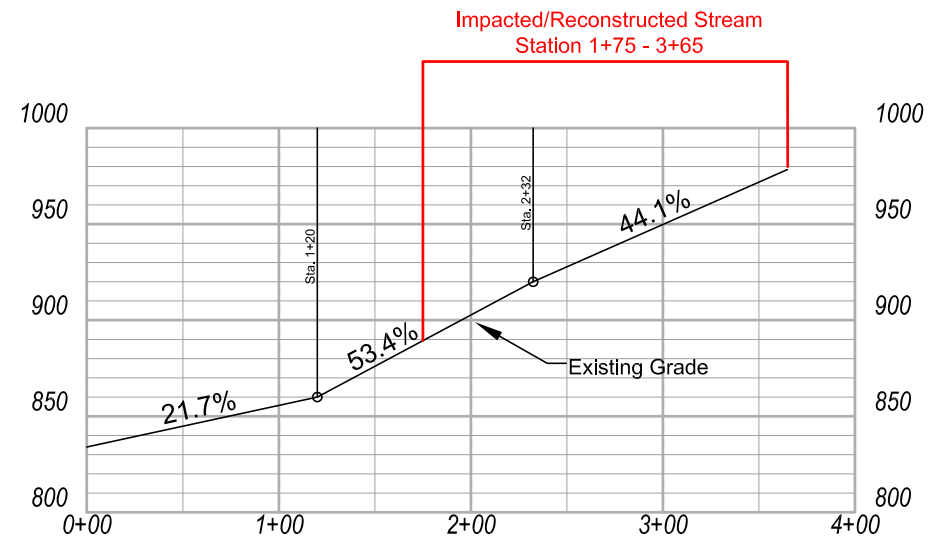




Stream 7 Profile

Scale: 1" = 100'

NORMAL HIGH WATER

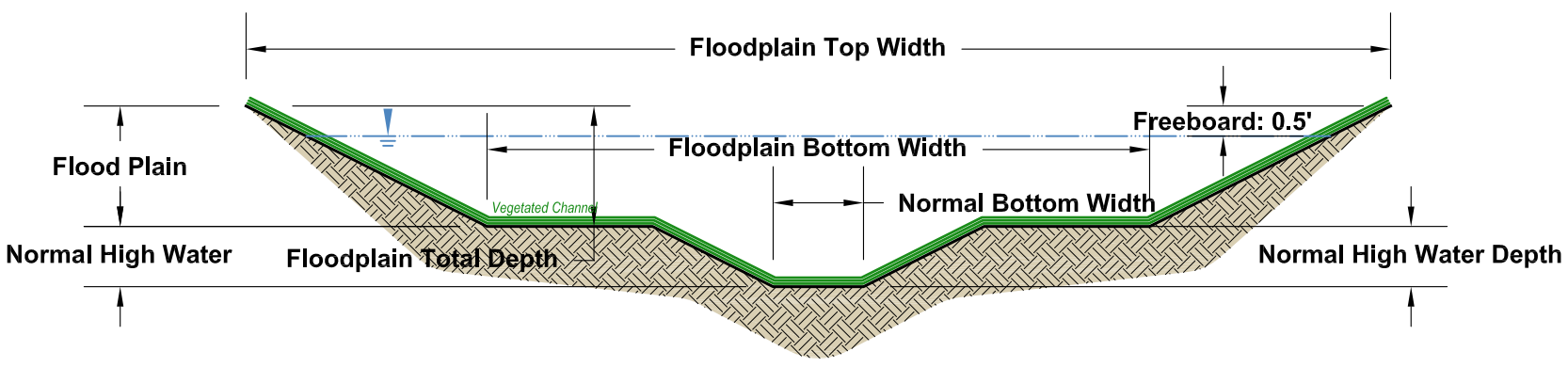
Stream Channel	*Channel Reconstruction Stations*	*Curve Number*	*Drainage Area (Acres)*	*Design Storm*	*Design Flow (cfs)*	*Design Slope*	*Side Slopes*	*Flow Depth*	*Bottom Width*	*Freeboard*	*Total Depth*	*Top Width*	*Velocity (Ft./Sec.)*	*Channel Lining*
Stream 7	1+75 to 2+32	71	5.4	1.5 y/6 h	2.4	53.4%	2:1	0.4'	2'	N/A	0.4'	3.4'	2.4	Vegetation
	2+32 to 3+65	71	3.2	1.5 y/6 h	1.4	44.1%	2:1	0.3'	2'	N/A	0.3'	3.3'	1.6	Vegetation

FLOOD PLAIN

Stream Channel	*Channel Reconstruction Stations*	*Curve Number*	*Drainage Area (Acres)*	*Design Storm*	*Design Flow (cfs)*	*Design Slope*	*Side Slopes*	*Flow Depth*	*Bottom Width*	*Freeboard*	*Total Depth*	*Top Width**	*Velocity (Ft./Sec.)*	*Channel Lining*
Stream 7	1+75 to 2+32	71	5.4	100 y/6 h	12.3	53.4%	2:1	0.3'	12.0'	0.5'	0.8'	15.3'	3.1	Vegetation
	2+32 to 3+65	71	3.2	100 y/6 h	7.3	44.1%	2:1	0.3'	12.0'	0.5'	0.8'	15.2'	2.0	Vegetation

** Measured including freeboard.*

Stream Channel	*Impacted Channel Stations*	*Impacted Channel Length*	*Reconstructed Channel Stations*	*Reconstructed Channel Length*
Stream 7	1+75 to 2+32	57'	1+75 to 2+32	57'
	2+32 to 3+65	133'	2+32 to 3+65	133'
		190'		190'



Vegetated Stream Channel with Vegetated Floodplain

Not To Scale

STATE OF OHIO
REGISTERED
MICHAEL S. KEARNS #46650
Professional Engineer

Michael S. Kearns P.E., M.S. Date

Addendum to Part 3, Item H(4)

Oxford Mining Company, LLC

Pasco Surface Mine Site
Stream 7 Reconstruction Plan

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www.hamiltonandassoc.com

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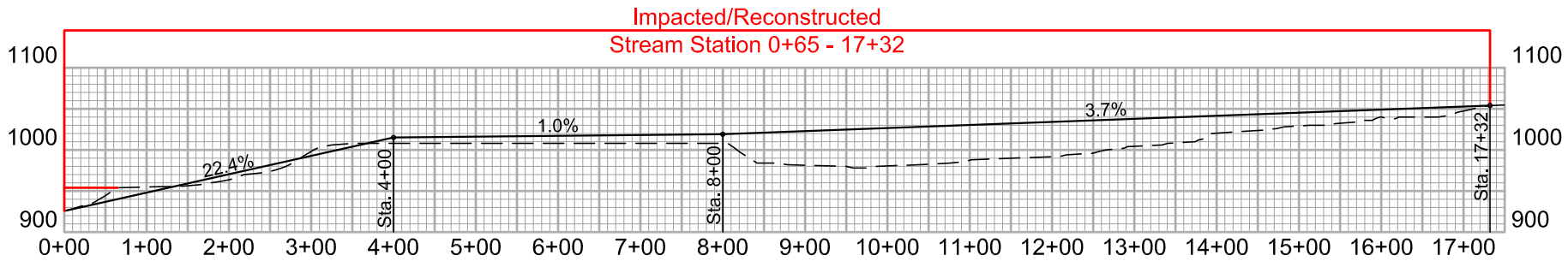
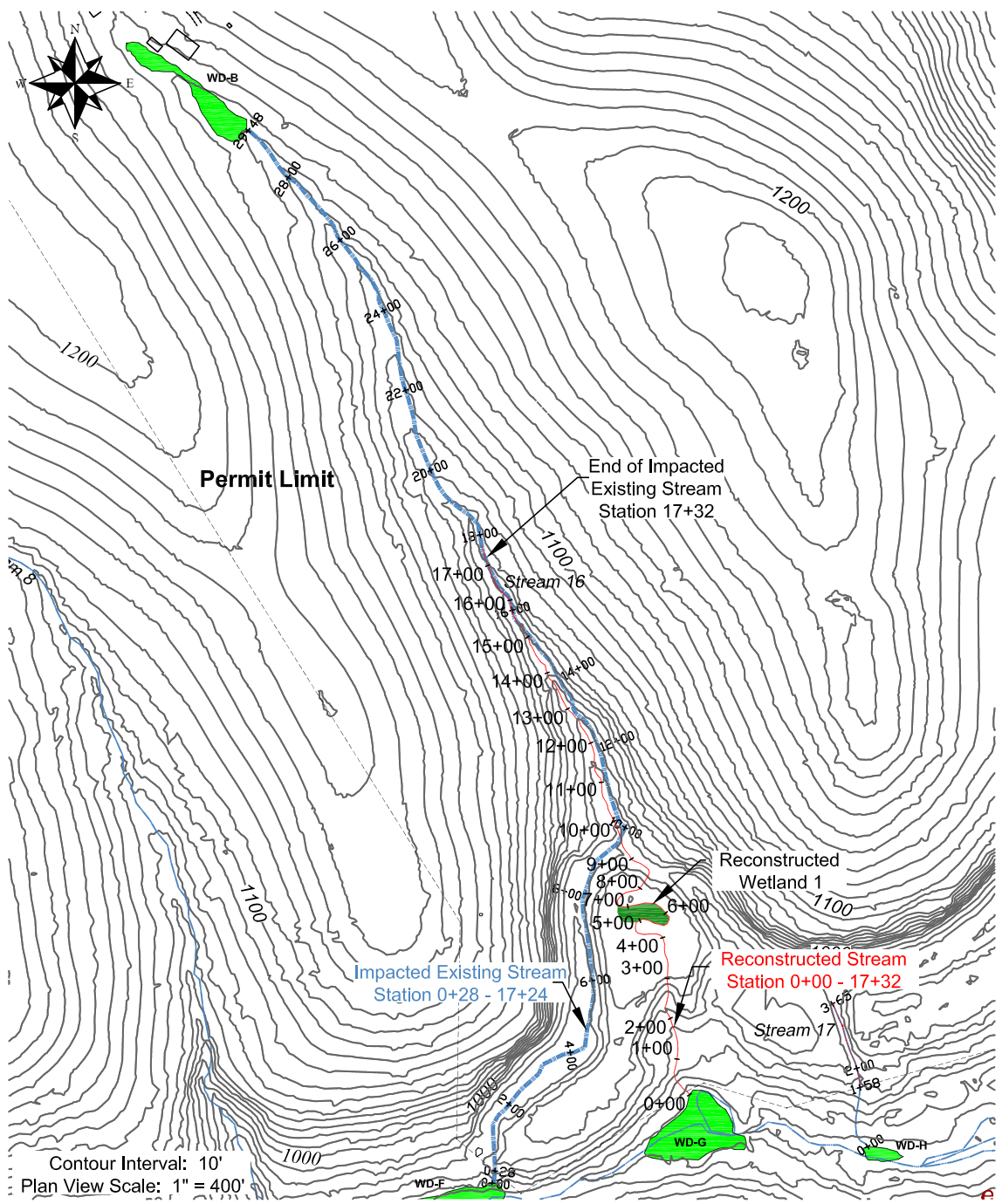
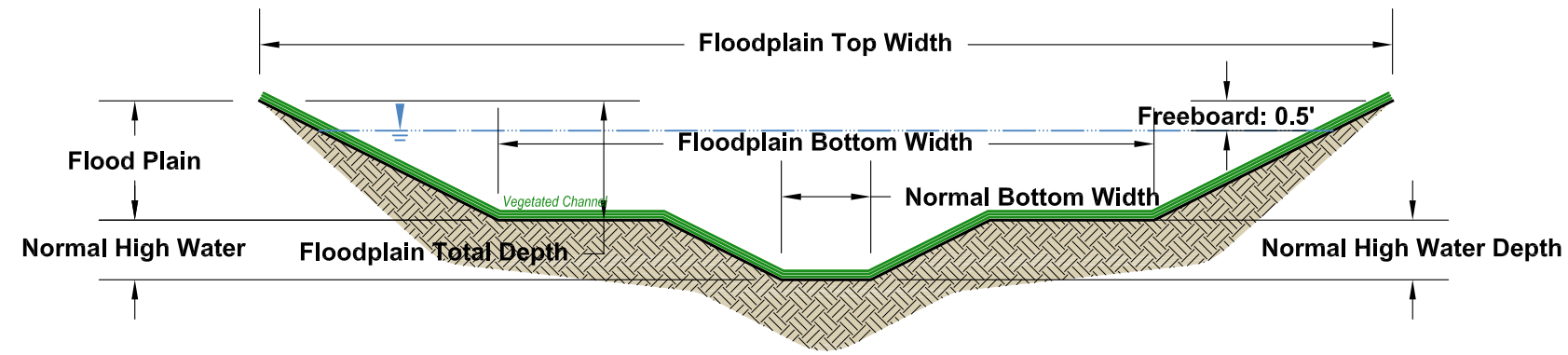


Stream 16 Profile

Scale: 1" = 200'





Vegetated Stream Channel with Vegetated Floodplain

Not To Scale

NORMAL HIGH WATER

Stream Channel	Channel Reconstruction Stations	Curve Number	Drainage Area (Acres)	Design Storm	Design Flow (cfs)	Design Slope	Side Slopes	Flow Depth	Bottom Width	Freeboard	Total Depth	Top Width	Velocity (Ft./Sec.)	Channel Lining
Stream 16	0+00 to 4+00	71	87.2	1.5 y/6 h	38.2	22.4%	2:1	1.0'	2'	N/A	1.0'	6.2'	9.0	RipRap
	4+00 to 8+00	71	82.2	1.5 y/6 h	36.0	1.0%	2:1	2.5'	2'	N/A	2.5'	12.1'	2.0	Vegetation
	8+00 to 17+32	71	78.6	1.5 y/6 h	34.4	3.7%	2:1	1.7'	2'	N/A	1.7'	9.0'	3.6	Vegetation

FLOOD PLAIN

Stream Channel	Channel Reconstruction Stations	Curve Number	Drainage Area (Acres)	Design Storm	Design Flow (cfs)	Design Slope	Side Slopes	Flow Depth	Bottom Width	Freeboard	Total Depth	Top Width*	Velocity (Ft./Sec.)	Channel Lining
Stream 16	0+00 to 4+00	71	87.2	100 y/6 h	198	22.4%	2:1	0.5'	80'	0.5'	1.0'	84.1'	4.7	Vegetation
	4+00 to 8+00	71	82.2	100 y/6 h	36.0	1.0%	2:1	2.1'	20'	0.5'	2.6'	30.3'	3.7	Vegetation
	8+00 to 17+32	71	78.6	100 y/6 h	34.4	3.7%	2:1	1.4'	20'	0.5'	1.9'	27.4'	5.8	Vegetation

** Measured including freeboard.*

Stream Channel	Impacted Channel Stations	Impacted Channel Length	Reconstructed Channel Stations	Reconstructed Channel Length
Stream 16	0+28 to 9+80	952'	0+00 to 4+00	400'
	9+80 to 17+24	744'	4+00 to 8+00	400'
			8+00 to 17+32	932'
		1696'		1732'

STATE OF OHIO
REGISTERED
MICHAEL S. KEARNS
#46650
Professional Engineer

Michael S. Kearns P.E., M.S. Date

Addendum to Part 3, Item H(4)

Oxford Mining Company, LLC

Pasco Surface Mine Site
Stream 16 Reconstruction Plan

Jack A. HAMILTON & Associates, Inc.
342 High St., Box 471
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www.hamiltonandassoc.com

REVISIONS

No.	DATE	DESCRIPTION	BY	CHKD

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DATE	03/30/2011
COMM. NO.	861-95

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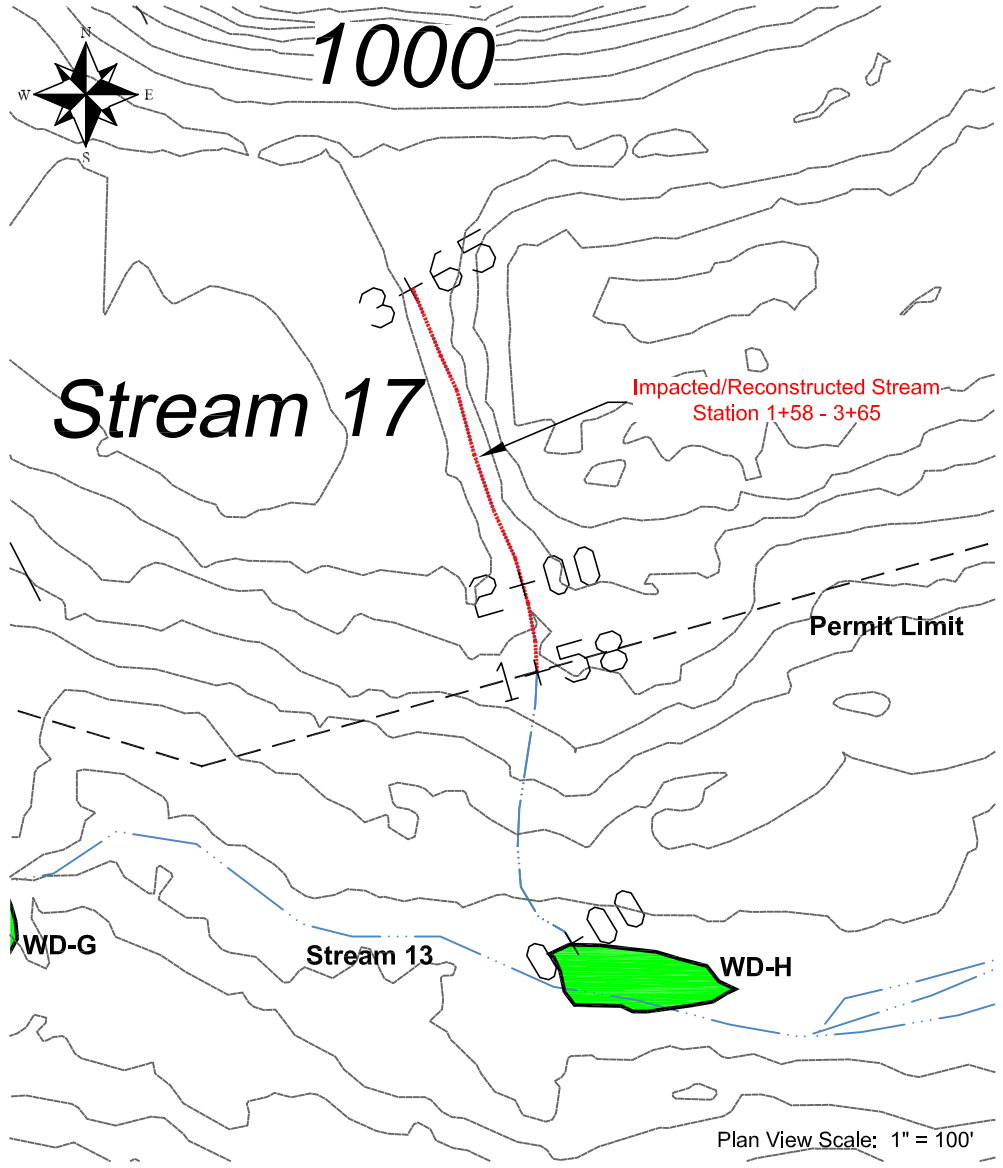
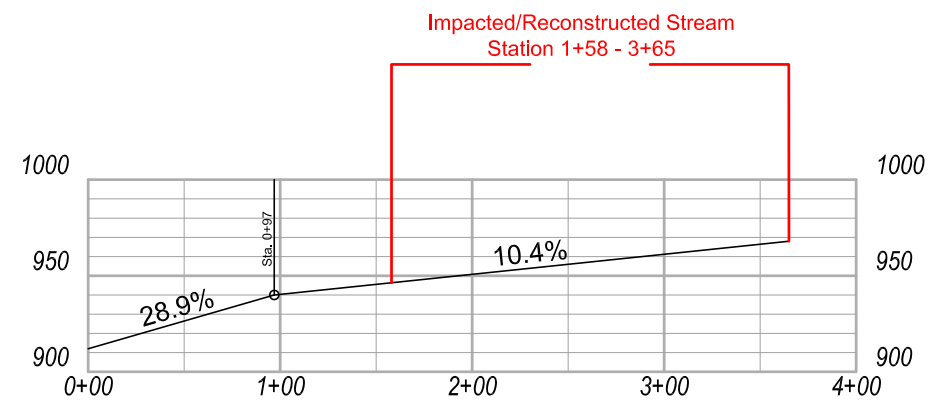




Stream 17 Profile

Scale: 1" = 100'

NORMAL HIGH WATER

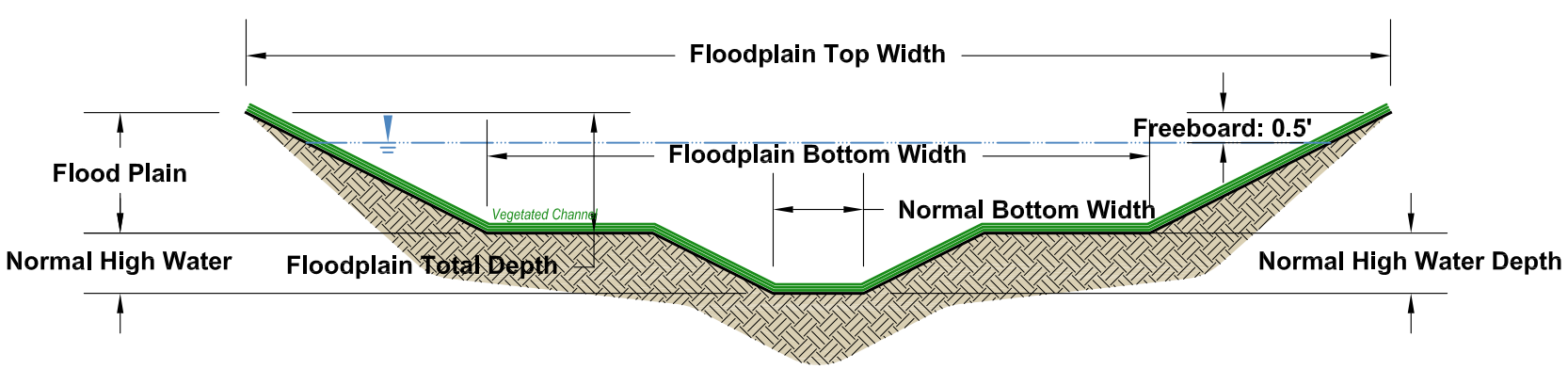
Stream Channel	Channel Reconstruction Stations	Curve Number	Drainage Area (Acres)	Design Storm	Design Flow (cfs)	Design Slope	Side Slopes	Flow Depth	Bottom Width	Freeboard	Total Depth	Top Width	Velocity (Ft./Sec.)	Channel Lining
Stream 17	1+58 to 3+65	71	27.5	1.5 y/6 h	12.0	10.4%	2:1	1.0'	2'	N/A	1.0'	5.9'	3.2	Vegetation

FLOOD PLAIN

Stream Channel	Channel Reconstruction Stations	Curve Number	Drainage Area (Acres)	Design Storm	Design Flow (cfs)	Design Slope	Side Slopes	Flow Depth	Bottom Width	Freeboard	Total Depth	Top Width*	Velocity (Ft./Sec.)	Channel Lining
Stream 17	1+58 to 3+65	71	27.5	100 y/6 h	62.5	10.4%	2:1	0.8'	15.0'	0.5'	1.3'	20.2'	4.8	Vegetation

** Measured including freeboard.*

Stream Channel	Impacted Channel Stations	Impacted Channel Length	Reconstructed Channel Stations	Reconstructed Channel Length
Stream 17	1+58 to 3+65	207'	1+58 to 3+65	207'
		207'		207'



Vegetated Stream Channel with Vegetated Floodplain

Not To Scale

STATE OF OHIO
REGISTERED
MICHAEL S. KEARNS
#46650
Professional Engineer

Michael S. Kearns P.E., M.S. Date

Addendum to Part 3, Item H(4)

Oxford Mining Company, LLC

Pasco Surface Mine Site
Stream 17 Reconstruction Plan

Jack A. HAMILTON & Associates, Inc.
342 High St., Box 471
Flushing, Ohio 43977
Ph: (740) 968-4947
Fax: (740) 968-4225
e-mail: hamilton@1st.net
www.hamiltonandassoc.com

REVISIONS

No.	DATE	DESCRIPTION	BY	CHKD

DRAWN BY	SJC/BHM
CHECKED BY	MSK
DATE	02/15/2011
COMM. NO.	861-95

SHEET

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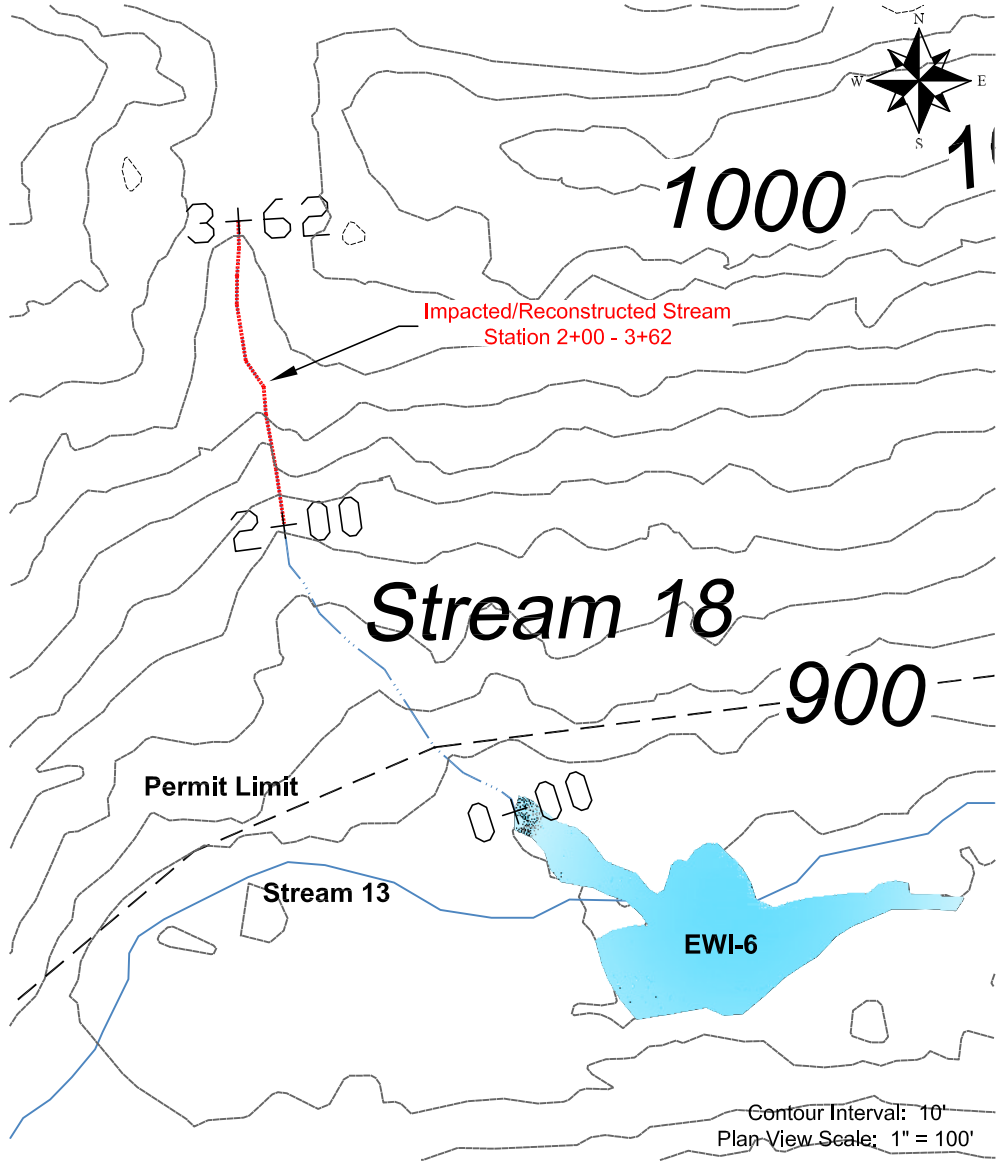
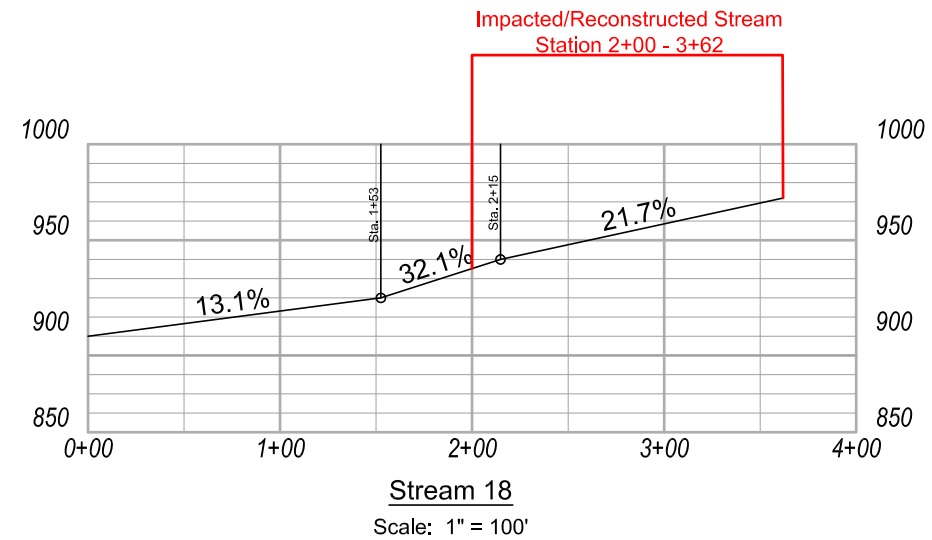




NORMAL HIGH WATER

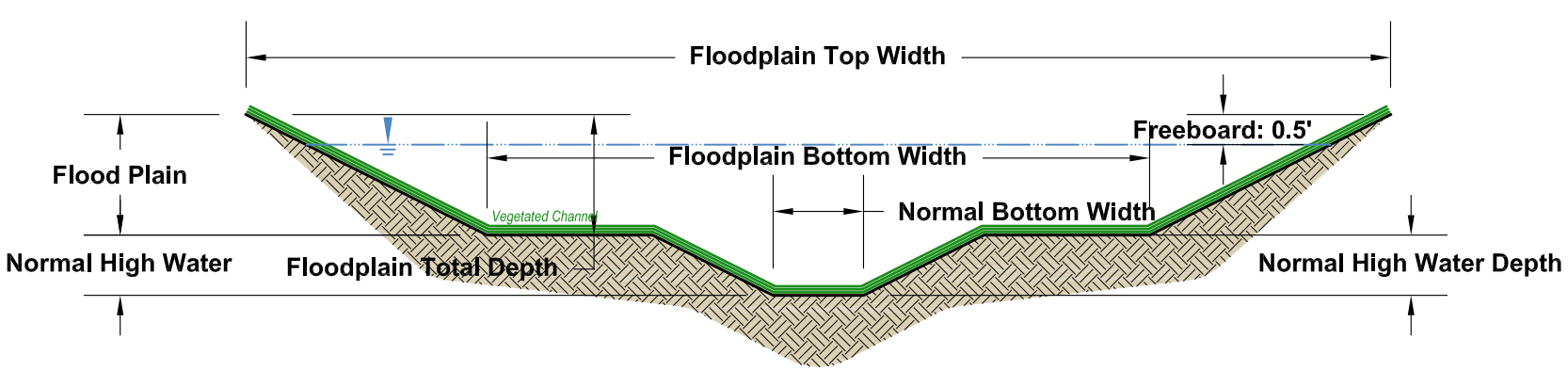
Stream Channel	*Channel Reconstruction Stations*	*Curve Number*	*Drainage Area (Acres)*	*Design Storm*	*Design Flow (cfs)*	*Design Slope*	*Side Slopes*	*Flow Depth*	*Bottom Width*	*Freeboard*	*Total Depth*	*Top Width*	*Velocity (Ft./Sec.)*	*Channel Lining*
Stream 18	2+00 to 2+15	71	4.1	1.5 y/6 h	1.8	32.1%	2:1	0.4'	2'	N/A	0.4'	3.6'	1.7	Vegetation
	2+15 to 3+62	71	4.1	1.5 y/6 h	1.8	21.7%	2:1	0.4'	2'	N/A	0.4'	3.8'	1.4	Vegetation

FLOOD PLAIN

Stream Channel	*Channel Reconstruction Stations*	*Curve Number*	*Drainage Area (Acres)*	*Design Storm*	*Design Flow (cfs)*	*Design Slope*	*Side Slopes*	*Flow Depth*	*Bottom Width*	*Freeboard*	*Total Depth*	*Top Width**	*Velocity (Ft./Sec.)*	*Channel Lining*
Stream 18	2+00 to 2+15	71	4.1	100 y/6 h	9.3	32.1%	2:1	0.4'	10.0'	0.5'	0.9'	13.5'	2.4	Vegetation
	2+15 to 3+62	71	4.1	100 y/6 h	9.3	21.7%	2:1	0.4'	10.0'	0.5'	0.9'	13.6'	2.1	Vegetation

** Measured including freeboard.*

Stream Channel	*Impacted Channel Stations*	*Impacted Channel Length*	*Reconstructed Channel Stations*	*Reconstructed Channel Length*
Stream 18	2+00 to 2+15	15'	2+00 to 2+15	15'
	2+15 to 3+62	147'	2+15 to 3+62	147'
		162'		162'



Vegetated Stream Channel with Vegetated Floodplain

Not To Scale

STATE OF OHIO
REGISTERED
MICHAEL S. KEARNS
#46650
Professional Engineer

Michael S. Kearns P.E., M.S. Date

Addendum to Part 3, Item H(4)

Oxford Mining Company, LLC

Pasco Surface Mine Site
Stream 18 Reconstruction Plan

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342 High St., Box 471
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REVISIONS

No.	DATE	DESCRIPTION	BY	CHKD

DRAWN BY	SJC/BHM
CHECKED BY	MSK
DATE	02/15/2011
COMM. NO.	861-95

SHEET

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