

708 Roosevelt Road

3901 Industrial Boulevard Indianapolis, Indiana 46254 317-388-1982 fax 317-388-1986 Ohio 11156 Luschek Drive Cincinnati, Ohio 45241

Eastern Michigan 605 S. Main Street, Suite 1 Ann Arbor, MI 48104 734-222-9690 fax 734-222-9655

Western Michigan 11181 Marwill Avenue

403 Venture Ct Unit 7 608-848-1789 fax 608-848-3013

West Olive, Michigan 49460 616-847-1680 fax 616-847-9970

SHEET INDEX

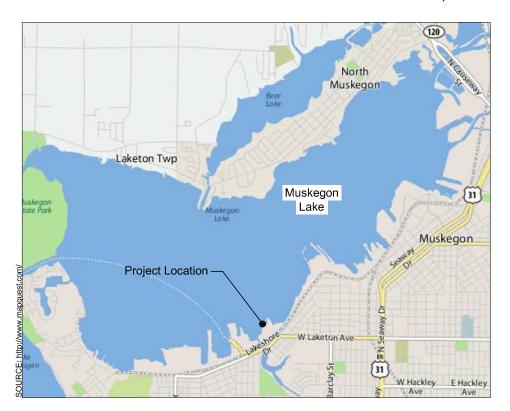
HEET	DESCRIPTION
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2	Site Location Map
3	Existing Site Conditions
4	Existing Conditions - Sta. 0+00 to 9+00
5	Existing Conditions - Sta. 9+00 to 23+00
6	Access Plan
7	Demolition Plan - Sta. 0+00 to 9+00
8	Demolition Plan - Sta. 9+00 to 23+00
9	Grading Plan
10	Restoration Plan - Sta. 0+00 to 9+00
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15	Seawall Removal Plan
16	Details and Specifications

Plant Lists and Specifications

West Michigan Shoreline Regional Development Commission and the Muskegon Lake Watershed **Partnership**

Amoco Peninsula and Ruddiman Creek Mouth Restoration Sites

Muskegon County, Michigan SEPTEMBER, 2013 AS-BUILT PLANS. APPROVED BY: SCOTT DIERKS, P.E.





















DRAWN BY: DESIGNED BY: JOB NO:



OF 17



17





Amoco Peninsula / Ruddiman Creek Mouth

NOT TO SCALE



JFNew

708 Roosevelt Road Walkerton, Indiana 465

Western Michigan 11181 Marwill Avenue West Olive, Michigan 4946



West Michigan Shoreline Regional
Development Commission and the
Muskegon Lake Watershed Partnership
Amoco / Ruddiman Properties

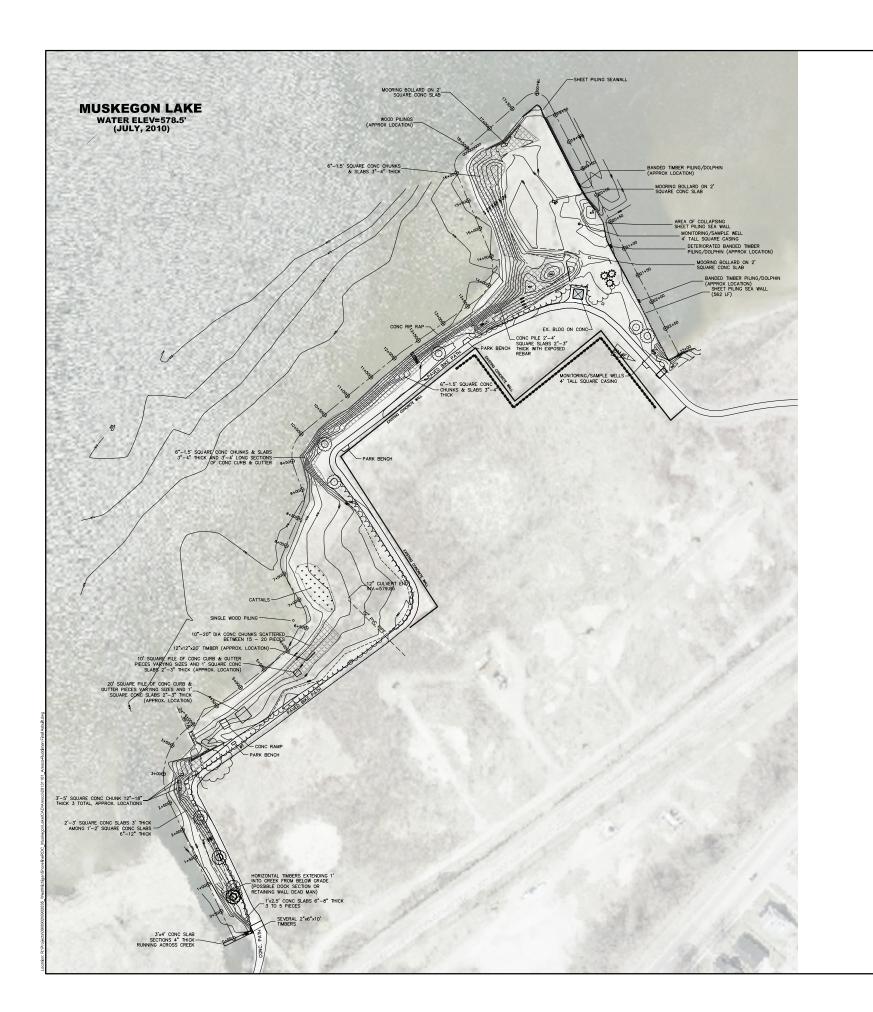
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DESIGNED BY: BM
DATE: 09/26/2013

JOB NO: 090203



SHEET NO.

2



- 1. ALL ITEMS LISTED ON THE LEGEND MAY NOT BE PRESENT ON THE DRAWING.
- 2. ALL PROPERTY AND/OR RIGHT-OF-WAY LINES SHOWN ARE APPROXIMATE.
- 3. ALL UNDERGROUND UTILITIES ARE APPROXIMATE BASED ON UTILITY PLANS, AS-BUILT PLANS, OR FIELD OBSERVATIONS.

- BM#1 BENCHMARK





FIRE HYDRANT -**Ò**-

WATER VALVE

CABLE BOX C

TELEPHONE RISER

TELEPHONE MANHOLE ELECTRICAL RISER

CURB STOP & BOX

ELECTRICAL MANHOLE Ð

POWER POLE

LIGHT POLE YARD LIGHT

SIGN

GUARD POST

MONITORING WELL TREE (DECIDUOUS)

CONCRETE CHUNKS, SLABS OF VARYING SIZES

CATTAILS

WOOD/NON-NATIVE DEBRIS

2+50 STATIONING MARKER

BM #E1 EL. 584.26'
12' W OF PARK BENCH
(DATUM=NAVD88 VIA GPS & OPUS)

SURVEY DATA PREPARED BY FLEIS & VANDENBRINK ENGINEERING, INC. (DEC., 2009).





RAPHIC SCALE VERIFICATION
This bar measures 1" on 22"x34
or 1/2" on 11"x19" original.
Adjust scale accordingly.

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West Michigan Shoreline Regional
Development Commission and the
Muskegon Lake Watershed Partnership
Amoco / Ruddiman Properties
Existing Site Conditions

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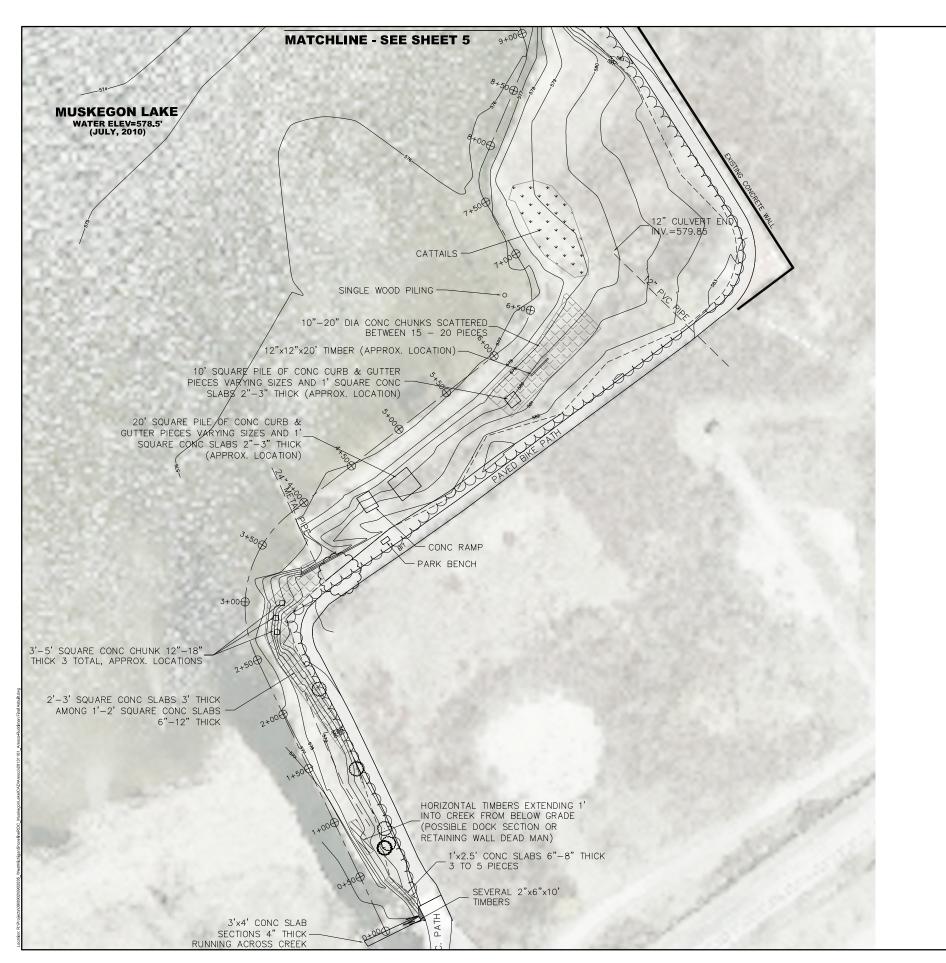
JOB NO: 0902035



SHEET NO.

OF 17

BEFORE YOU DIG CALL MISS DIG CALL 3 FULL WORKING DAYS 811 OR 1-800-482-7191



- 1. ALL ITEMS LISTED ON THE LEGEND MAY NOT BE PRESENT ON THE DRAWING.
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- UTILITY PLANS, AS-BUILT PLANS OR FIELD OBSERVATIONS.

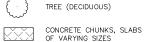
LEGEND

- 3. ALL UNDERGROUND UTILITIES ARE APPROXIMATE BASED ON

- TEMP. SURVEY POINT BM#1> BENCHMARK
- SECTION CORNER
- FIRE HYDRANT φ.
- WATER VALVE
- CURB STOP & BOX CABLE BOX

C

- TELEPHONE RISER
- 1 TELEPHONE MANHOLE
- ELECTRICAL RISER
- ELECTRICAL MANHOLE Ð
- POWER POLE
- LIGHT POLE
- YARD LIGHT
- SIGN
- GUARD POST
- MONITORING WELL





CATTAILS

2+50 STATIONING MARKER

BM #E1 EL. 584.26' 12' W OF PARK BENCH (DATUM=NAVD88 VIA GPS & OPUS)

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West Michigan Shoreline Regional
Development Commission and the
Muskegon Lake Watershed Partnership
Amoco / Ruddiman Properties
Existing Conditions - 0+00 to 9+00

DRAWN BY: RB DESIGNED BY: ВМ

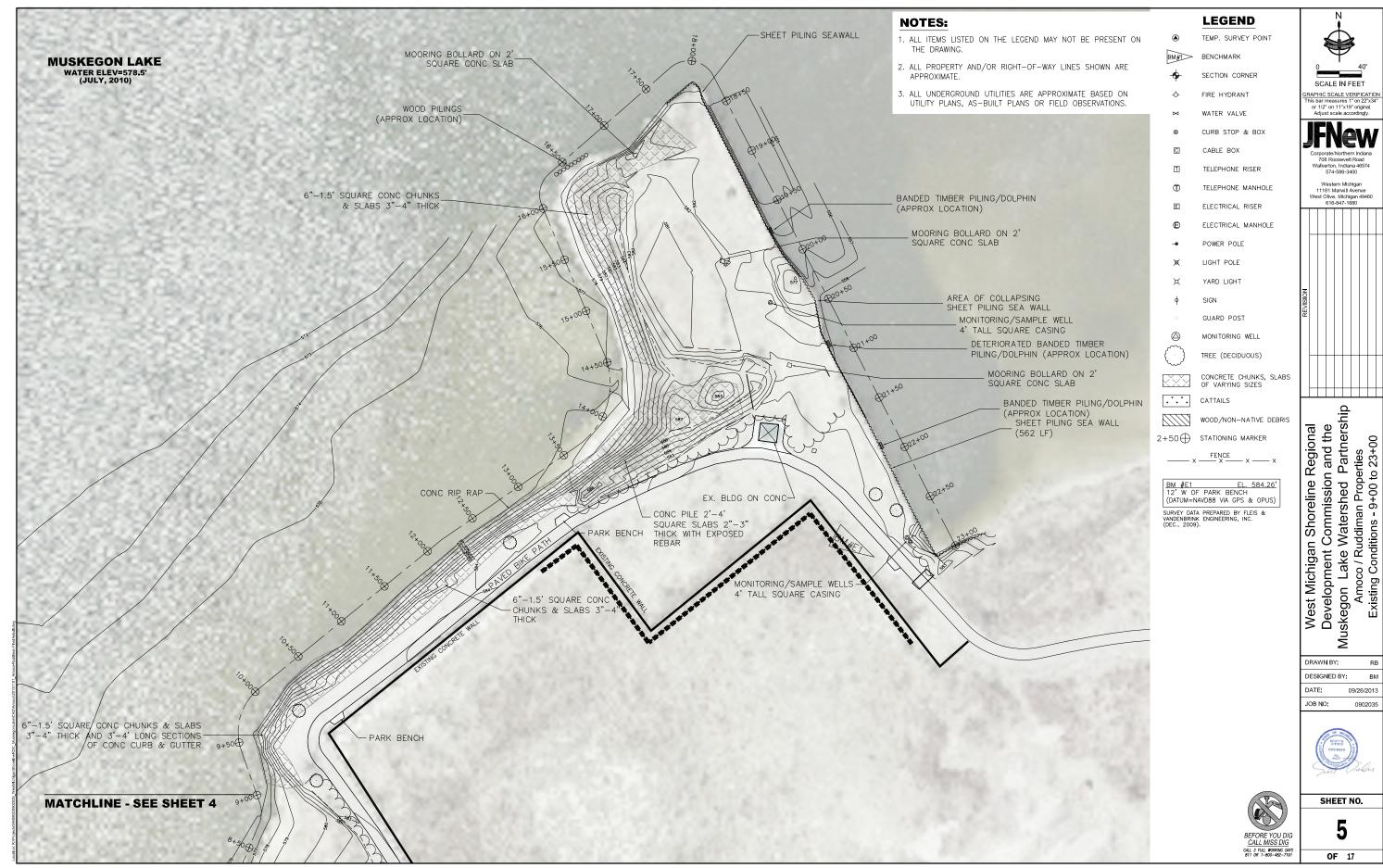
09/26/2013 JOB NO: 0902035



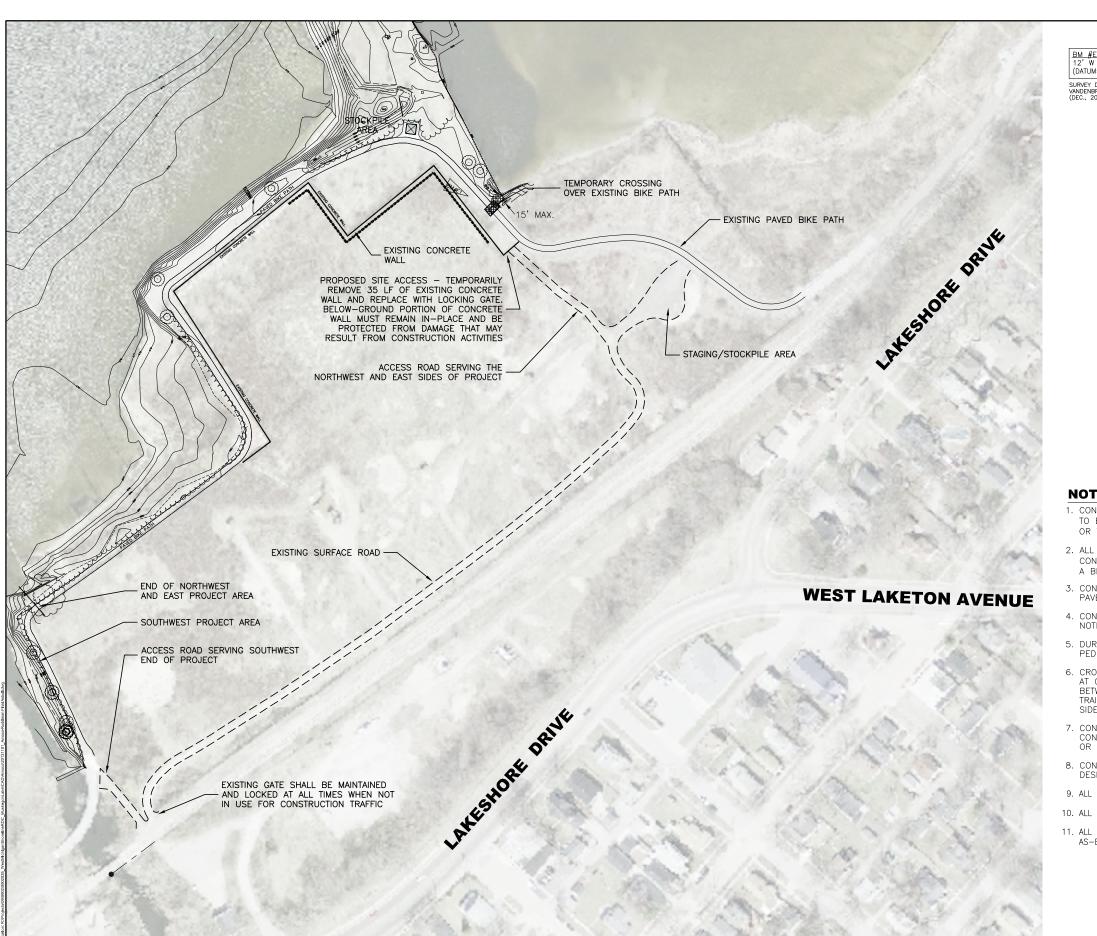
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TEMP. SURVEY POINT BENCHMARK SECTION CORNER FIRE HYDRANT WATER VALVE CURB STOP & BOX CABLE BOX TELEPHONE RISER TELEPHONE MANHOLE ELECTRICAL RISER ELECTRICAL MANHOLE POWER POLE LIGHT POLE YARD LIGHT

SIGN

GUARD POST

MONITORING WELL TREE (DECIDUOUS)

_____ × _____ × _____ >

SCALE IN FEET PHIC SCALE VERIFICATION
S har measures 1" on 22"x34"

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Adjust scale accordingly.

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING DAMAGE TO EXISTING STRUCTURES INCLUDING BENCHES, PAVED BIKE PATH, OR TURF GRASS.

- 2. ALL DAMAGED TURF GRASS SHALL BE REPAIRED BY RE-SEEDING. CONTRACTOR SHALL PROVIDE A COST FOR SOD INSTALLATION AS A BID ALTERNATE.
- 3. CONTRACTOR MAY CONSTRUCT ONE TEMPORARY CROSSING ACROSS PAVED BIKE PATH NO WIDER THAN 15 FEET.
- 4. CONTRACTOR SHALL POST SIGNAGE ON EITHER SIDE OF CROSSING NOTIFYING USERS OF THE CROSSING.
- 5. DURING USE, THE CROSSING SHALL BE CLOSED ENTIRELY TO PEDESTRIAN TRAFFIC.
- 6. CROSSING SHALL BE CLOSED FOR NO MORE THAN 30 MINUTES AT ONE TIME, AND MUST REMAIN OPEN FOR AT LEAST ONE HOUR BETWEEN CLOSINGS. ALTERNATIVELY, CONTRACTOR MAY CLOSE TRAIL ACCESS TEMPORARILY IF FLAGMEN ARE POSTED ON EITHER
- 7. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR (TO PRE-CONSTRUCTION CONDITION) OF ALL DAMAGE TO PAVED BIKE PATH OR ADJACENT AREAS THAT OCCUR DURING CONSTRUCTION ACTIVITIES
- 8. CONTRACTOR MAY ELECT TO ACCESS SITE VIA BARGE OR BOAT IF DESIRED.
- 9. ALL ITEMS LISTED ON THE LEGEND MAY NOT BE PRESENT ON THE DRAWING
- 10. ALL PROPERTY AND/OR RIGHT-OF-WAY LINES SHOWN ARE APPROXIMATE.
- 11. ALL UNDERGROUND UTILITIES ARE APPROXIMATE BASED ON UTILITY PLANS, AS-BUILT PLANS OR FIELD OBSERVATIONS.

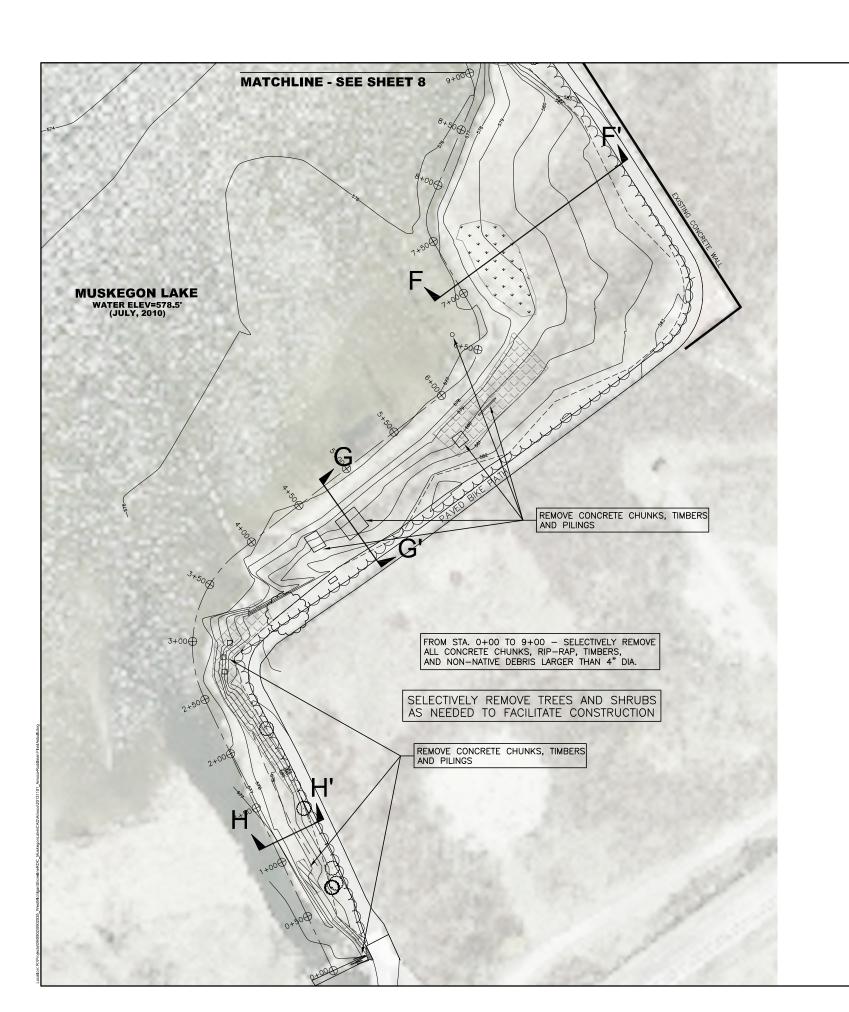


BEFORE YOU DIG

West Michigan Shoreline Regional
Development Commission and the
Muskegon Lake Watershed Partnership
Amoco / Ruddiman Properties
Access Plan DRAWN BY: DESIGNED BY: DATE: 09/26/2013

JOB NO: 0902035

SHEET NO.



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- 4. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING DAMAGE TO EXISTING STRUCTURES, PAVED BIKE PATH, OR TURF GRASS.
- 5. ALL DAMAGED TURF GRASS SHALL BE REPAIRED BY RE-SEEDING. CONTRACTOR SHALL PROVIDE A COST FOR SOD INSTALLATION AS A BID ALTERNATE.
- 7. MONITORING WELLS WITHIN GRADING LIMITS SHALL BE ABANDONED IN-PLACE.
- 8. TREES TO BE PRESERVED SHALL BE MARKED BY ENGINEER. CONTRACTOR SHALL IDENTIFY THESE TREES PRIOR TO INITIATION OF CONSTRUCTION.

LEGEND

TEMP. SURVEY POINT

BM#1> BENCHMARK

SECTION CORNER

FIRE HYDRANT

WATER VALVE CURB STOP & BOX

CABLE BOX

TELEPHONE RISER

TELEPHONE MANHOLE Œ

ELECTRICAL RISER

ELECTRICAL MANHOLE

POWER POLE

LIGHT POLE

GUARD POST

MONITORING WELL TREE (DECIDUOUS)

CONCRETE CHUNKS, SLABS OF VARYING SIZES CATTAILS

WOOD/NON-NATIVE DEBRIS

2+50 STATIONING MARKER

____ x ___ FENCE ___ x ___ x

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West Michigan Shoreline Regional
Development Commission and the
Muskegon Lake Watershed Partnership
Amoco / Ruddiman Properties
Demolition Plan - 0+00 to 9+00

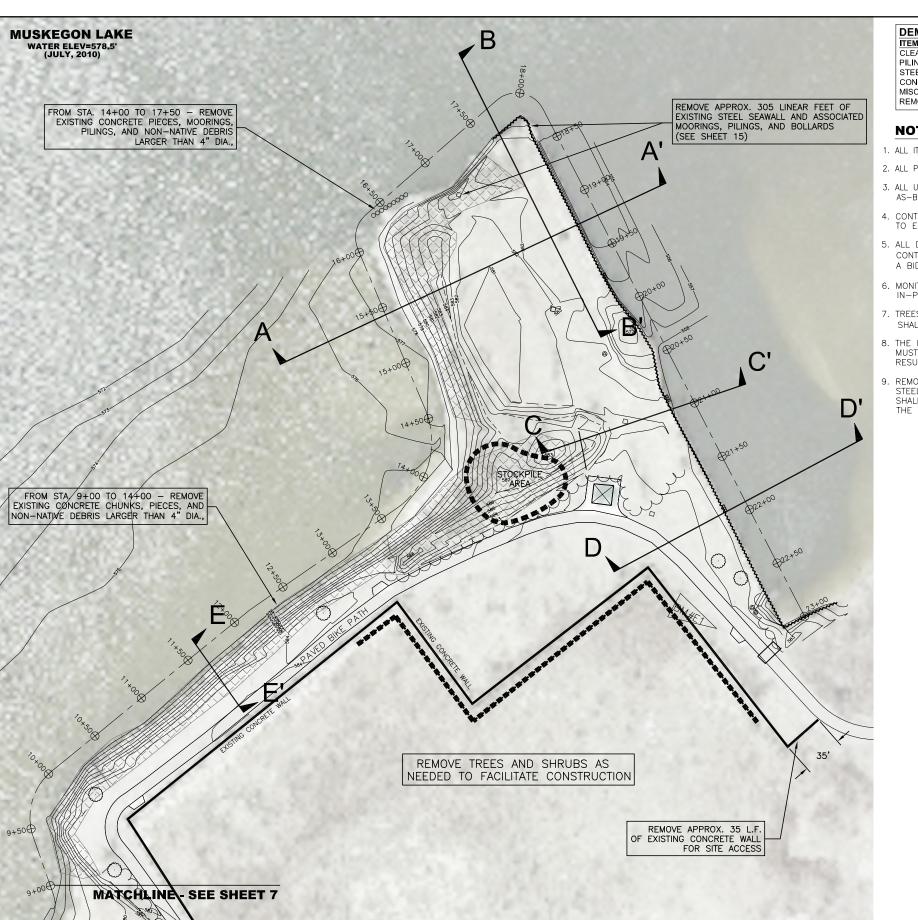
DRAWN BY:

DESIGNED BY:

DATE: 09/26/2013 JOB NO: 0902035



SHEET NO.



DEMOLITION SUMMARY: AMOCO / RI	UNIT	QTY.
CLEARING AND GRUBBING	LS	1
PILINGS, MOORINGS, AND BOLLARD REMOVAL	LS	1
STEEL SEAWALL REMOVAL	LS	1
CONCRETE REMOVAL AND RECYCLING	CY	3,690
MISC. FOUNDRY, METAL, AND DEBRIS	CY	120
REMOVAL		

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- 4. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING DAMAGE TO EXISTING STRUCTURES, PAVED BIKE PATH, OR TURF GRASS.
- 5. ALL DAMAGED TURF GRASS SHALL BE REPAIRED BY RE-SEEDING. CONTRACTOR SHALL PROVIDE A COST FOR SOD INSTALLATION AS A BID ALTERNATE.
- 6. MONITORING WELLS WITHIN GRADING LIMITS SHALL BE ABANDONED IN-PLACE.
- 7. TREES TO BE PRESERVED SHALL BE MARKED BY ENGINEER. CONTRACTOR SHALL IDENTIFY THESE TREES PRIOR TO INITIATION OF CONSTRUCTION.
- 8. THE BELOW-GROUND PORTION OF THE CONCRETE WALL REMOVAL MUST REMAIN IN-PLACE AND BE PROTECTED FROM DAMAGE THAT MAY RESULT FROM CONSTRUCTION ACTIVITIES.
- 9. REMOVED PORTION OF SEAWALL SHALL BE TRANSPORTED TO MICHIGAN STEEL FOR RECYCLING BY THE CONTRACTOR. THE CITY OF MUSKEGON SHALL RECEIVE ANY PROCEEDS RESULTING FROM THE RECYCLING OF

LEGEND

TEMP. SURVEY POINT

BM#1> BENCHMARK

SECTION CORNER

FIRE HYDRANT

CURB STOP & BOX

WATER VALVE

CABLE BOX

TELEPHONE RISER

TELEPHONE MANHOLE

ELECTRICAL RISER

ELECTRICAL MANHOLE POWER POLE

LIGHT POLE

SIGN

GUARD POST

MONITORING WELL TREE (DECIDUOUS)

CONCRETE CHUNKS, SLABS OF VARYING SIZES

CATTAILS WOOD/NON-NATIVE DEBRIS

2+50 STATIONING MARKER

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Development Commission and the
Muskegon Lake Watershed Partnership
Amoco / Ruddiman Properties
Demolition Plan - Sta. 9+00 to 23+00

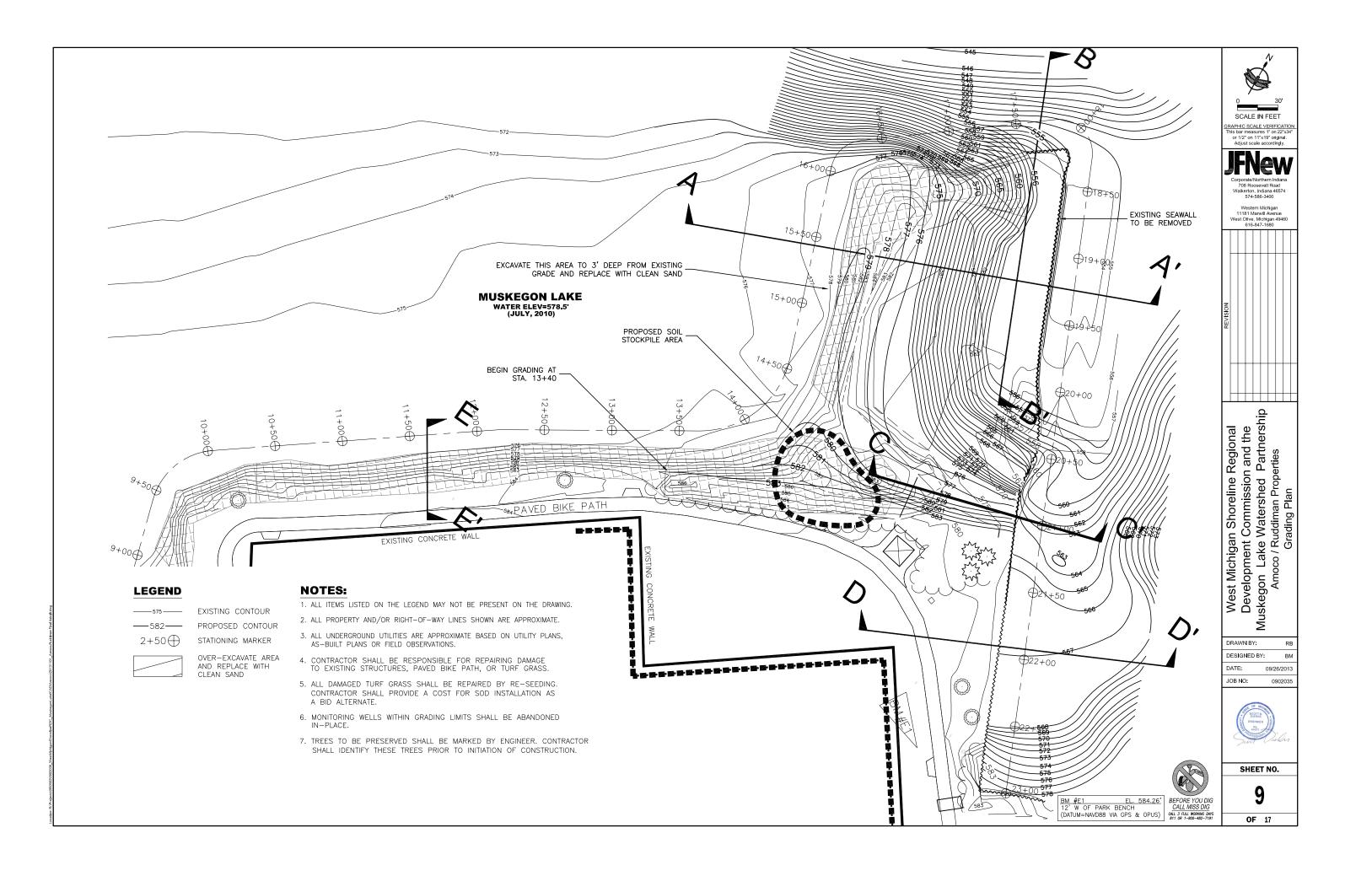
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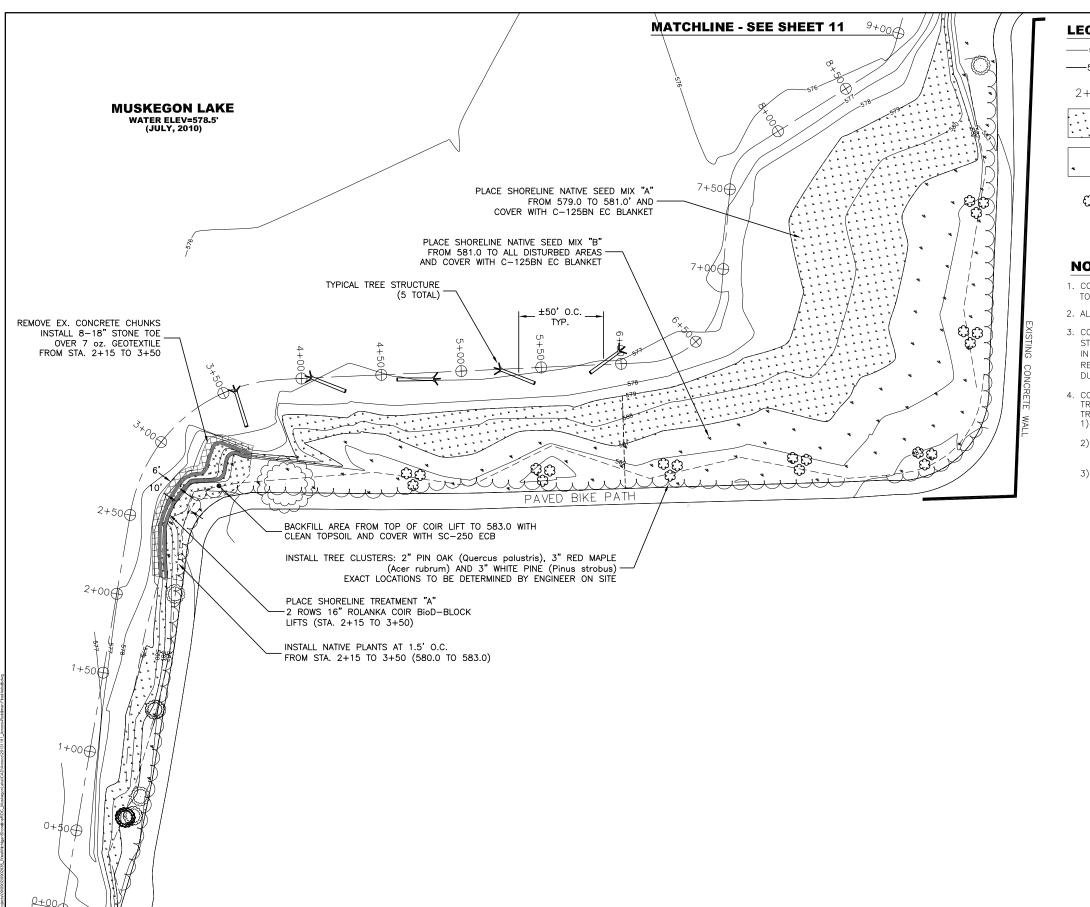
DATE: 09/26/2013

JOB NO: 0902035



SHEET NO.





_____575_____ EXISTING CONTOUR

PROPOSED CONTOUR ----582-

2+50 STATIONING MARKER

SHORELINE NATIVE SEED MIX "A"

SHORELINE NATIVE SEED MIX "B"

TREE CLUSTER

NOTES:

- 1. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING DAMAGE TO EXISTING STRUCTURES, ASPHALT PATH, OR TURF GRASS.
- 2. ALL DAMAGED TURF GRASS SHALL BE REPAIRED BY RE-SEEDING.
- 3. CONTRACTOR SHALL AVOID ALL EXISTING CONDUIT, PIPING, AND STRUCTURES WITHIN PROJECT AREA NOT OTHERWISE SPECIFIED IN DRAWINGS OR SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRS TO ANY STRUCTURES DAMAGED DURING CONSTRUCTION.
- 4. CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND TRANSPORTING TREE STRUCTURES TO PROJECT SITE. TREES SHALL ORIGINATE FROM 1 OF 3 SOURCES:
- 1) TREES CUT FROM THIS SITE FOR GRADING PURPOSES SHALL BE RE-USED.
- 2) TREES PILED AT A NEARBY LOCATION FROM A PREVIOUS PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR TRANSPORTATION OF TREES TO THIS PROJECT SITE.
- 3) MUSKEGON CONSERVATION DISTRICT (MCD) SHALL PROVIDE TREES FROM A LOCATION IN MUSKEGON COUNTY AT NO COST TO THE CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND TRANSPORTING TREES TO THIS PROJECT LOCATION.



SCALE IN FEET RAPHIC SCALE VERIFICATION

This bar measures 1" on 22"x3or 1/2" on 11"x19" original

Adjust scale accordingly.

708 Roosevelt Road Walkerton, Indiana 46574 574-586-3400



West Michigan Shoreline Regional
Development Commission and the
Muskegon Lake Watershed Partnership
Amoco / Ruddiman Properties
Restoration Plan - Sta. 0+00 to 9+00

DRAWN BY:

DESIGNED BY: DATE: 09/26/2013

JOB NO: 0902035



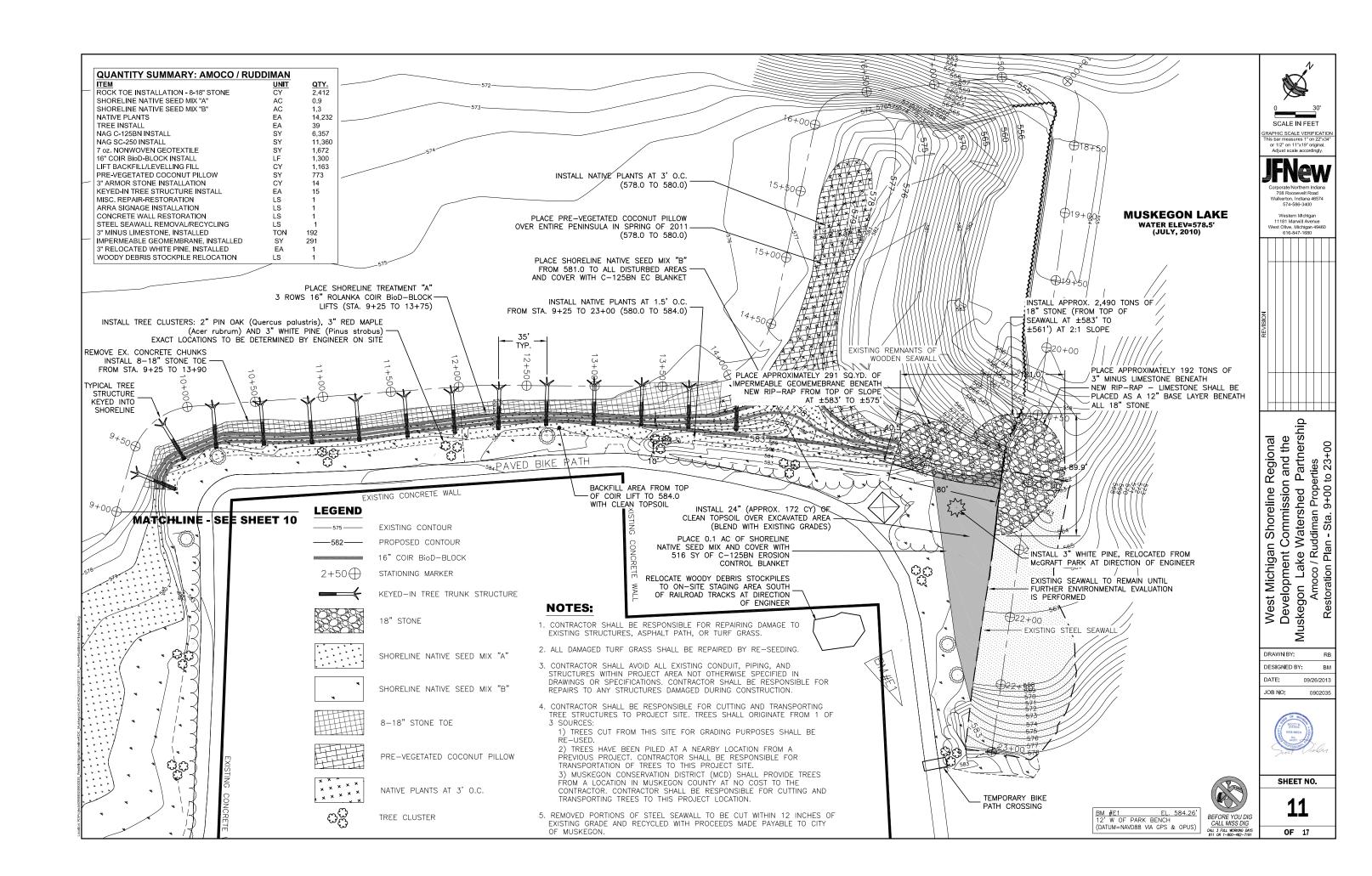
SHEET NO.

OF 17

BM #E1 EL. 584.26' 12' W OF PARK BENCH

(DATUM=NAVD88 VIA GPS & OPUS)

BEFORE YOU DIG CALL MISS DIG



EXISTING GRADE

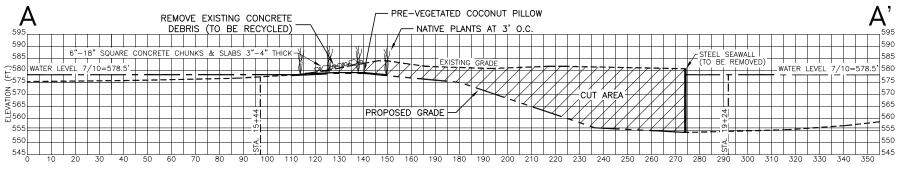
PROPOSED GRADE PROPOSED SOIL EXCAVATION



PROPOSED SOIL FILL

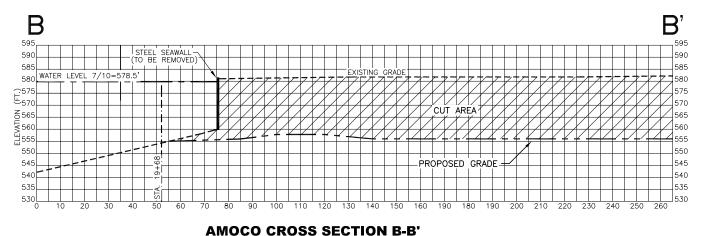
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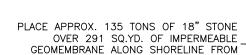
- 1. RECORDED HIGH WATER ELEVATION = 581.0'
- 2. LONG-TERM AVERAGE WATER ELEVATION = 578.5'
- 3. RECORDED LOW WATER ELEVATION = 575.8'
- 4. WATER LEVELS REFLECT NGVCM IGLD.
- 5. PLACE SHORELINE NATIVE SEED MIX "A" IN LIFT
- 6. PLACE SHORELINE NATIVE SEED MIX "B" ABOVE 581.0 ON ALL DISTURBED AREAS AND COVER WITH NAG C-125BN.



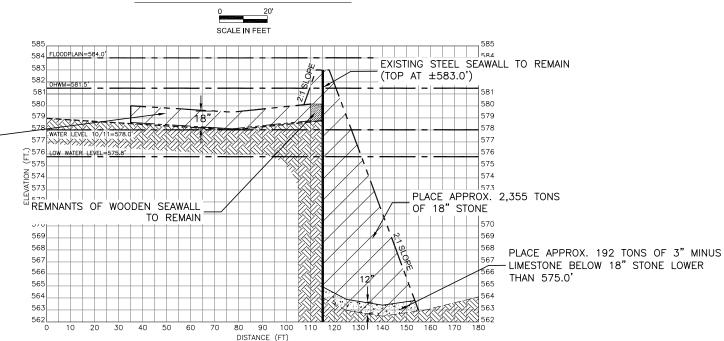
AMOCO CROSS SECTION A-A'







575.0' TO 583.0'

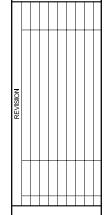


AMOCO CROSS SECTION C-C'









West Michigan Shoreline Regional
Development Commission and the
Muskegon Lake Watershed Partnership
Amoco / Ruddiman Properties
Proposed Cross Sections A-A' thru C-C'

DRAWN BY:

0902035

DESIGNED BY: DATE: 09/26/2013

JOB NO:



SHEET NO.

BEFORE YOU DIG CALL MISS DIG OF 17

EXISTING GRADE

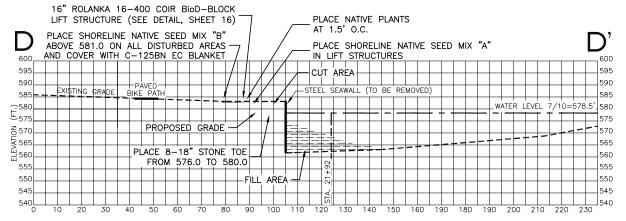
PROPOSED GRADE

PROPOSED SOIL EXCAVATION

PROPOSED SOIL FILL

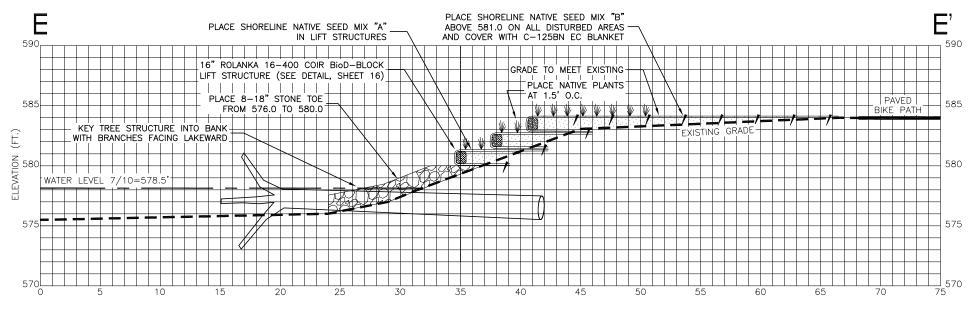
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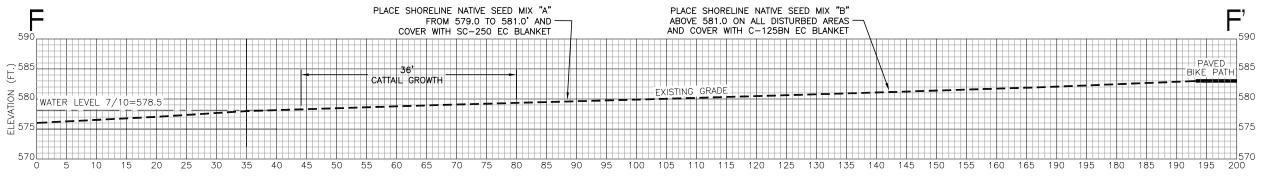
AMOCO CROSS SECTION D-D'





RUDDIMAN CROSS SECTION E-E' (STA. 11+65)





RUDDIMAN CROSS SECTION F-F' (STA. 7+10)









West Michigan Shoreline Regional
Development Commission and the
Muskegon Lake Watershed Partnership
Amoco / Ruddiman Properties
Proposed Cross Sections D-D' thru F-F'

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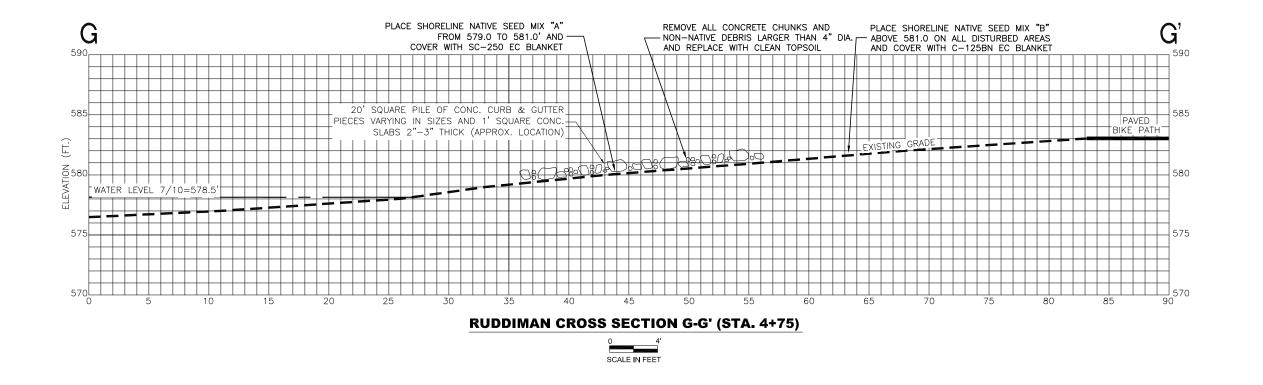
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 BM

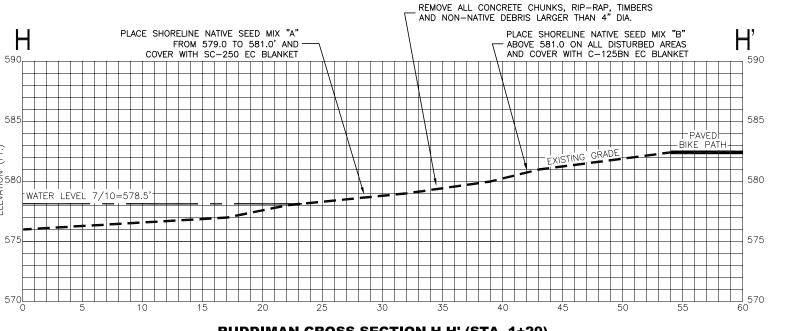
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SHEET NO.





EXISTING GRADE

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West Michigan Shoreline Regional
Development Commission and the
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Amoco / Ruddiman Properties
Proposed Cross Sections G-G' and H-H'

DRAWN BY:

DESIGNED BY:

DATE: 09/26/2013 JOB NO: 0902035



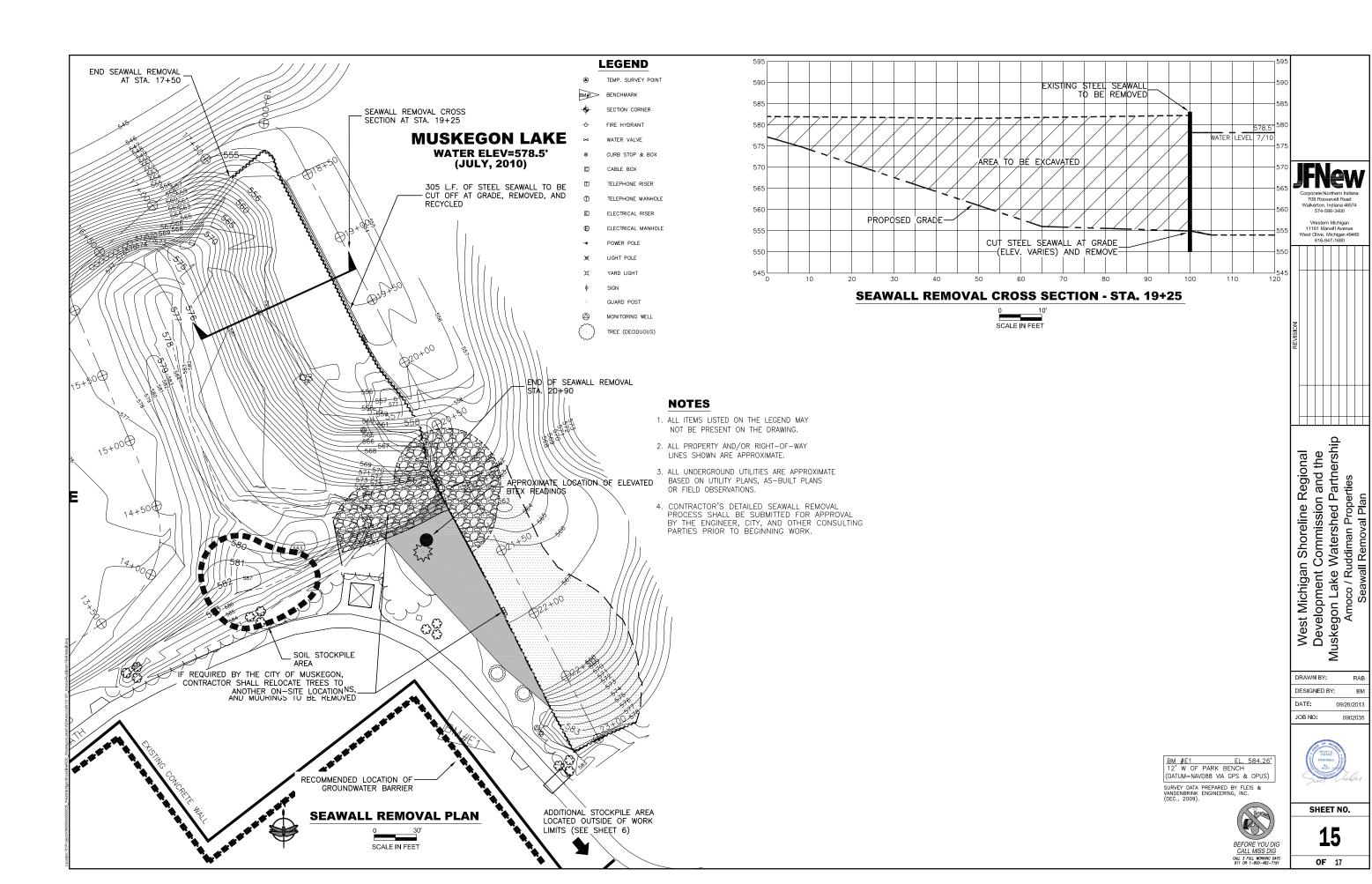
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OF 17

RUDDIMAN CROSS SECTION H-H' (STA. 1+20)

SCALE IN FEET



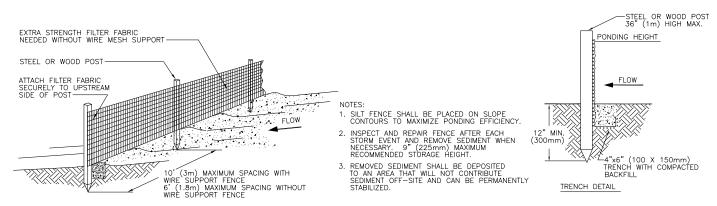
WRAP SC-250 INSIDE BIOD-BLOCK VARIES VARIES OCCUMPRESSED COIR FIBER BLOCK WOODEN STAKE ROLANKA 16-400 COIR BIOD-BLOCK SYSTEM

NOT TO SCALE

PLACE SHORELINE NATIVE SEED MIX "B" PLACE NATIVE PLANTS AT 1.5' O.C. PLACE SHORELINE NATIVE SEED MIX "A" 16" ROLANKA 16-400 COIR BioD-BLOCK LIFTS NAG SC-250BN SOIL EROSION CONTROL BLANKET 8"-18" STONE TOE (07/2010) ▼ 578.5' 2:1 SLOPE 1NSIDE BioD-BLOCK

SHORELINE TREATMENT "A" - STA. 9+25 TO 14+25

NOT TO SCALE



BLANKETS/MATS INSTALLED HORIZONTALLY ACROSS SIDE SLOPES 36" TRENCHING REO'D.

TYPICAL EROSION CONTROL BLANKET INSTALLATION

NOT TO SCALE

NOTES:

- 1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS
 AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
- 2. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
- 3. NORTH AMERICAN GREEN EROSION CONTROL BLANKETS TO BE INSTALLED ON ALL DISTURBED AREAS AS SPECIFIED.



Corporate/Northern Indiana 708 Roosevelt Road Walkerton, Indiana 46574 574-586-3400 Western Michigan

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DRAWN BY: RAB

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JOB NO: 0902035



SHEET NO.

16

OF 17

SILT FENCE DETAIL

NOT TO SCALE

SHORELINE SEED MIX "A"

		PLS Oz
Scientific Name	Common Name	Per Acre
Acorus calamus	Sweet flag	2
Alisma subcordatum	Common water plantain	2
Asclepias incarnata	Swamp milkweed	4
Aster novae-angliae	New England aster	2
Avena sativa	Seed oats	840
Calamagrostis canadensis	Blue joint grass	2
Carex comosa	Bristly sedge	4
Carex hystericina	Porcupine sedge	4
Carex Iurida	Bottlebrush sedge	4
Carex vulpinoidea	Brown fox sedge	4
Elymus virginicus	Virginia wild rye	16
Eupatorium maculatum	Spotted joe-pye weed	1
Eupatorium perfoliatum	Common boneset	1
Glyceria striata	Fowl manna grass	2
Iris virginica shrevei	Blue flag iris	8
Juncus effusus	Common rush	4
Lolium multiflorum	Annual rye	160
Mimulus ringens	Monkey flower	3
Monarda fistulosa	Wild bergamot	2
Panicum virgatum	Switch grass	8
Sagittaria latifolia	Common arrowhead	8
Scirpus acutus	Hard-stemmed bulrush	6
Scirpus atrovirens	Dark green rush	3
Scirpus cyperinus	Wool grass	2
Scirpus fluviatilis	River bulrush	4
Scirpus pungens	Chairmaker's rush	4
Scirpus validus creber	Great bulrush	8
Sparganium eurycarpum	Common bur reed	8
Spartina pectinata	Prairie cord grass	8
	Total PLS Ounces	1124.00
	Total PLS Pounds	70.25

SHORELINE SEED MIX "B"

Asclepias tuberosa Butterfly weed 3 Asclepias vericillata Whorled milkweed 1 Aster laevis Smooth blue aster 2 Aster novae-angliae New England aster 2 Aster umbellatus Flat-top aster 3 Avena sativa Seed oats 512 Cinna arundinacea Common wood reed 2 Coreopsis lanceolata Sand coreopsis 2 Coreopsis tripteris Tall coreopsis 2 Echinacea pallida Purple coneflower 4 Elymus canadensis Canada wild rye 8 Elymus virginicus Virginia wild rye 8 Eupatorium maculatum Spotted joe-pye weed 1 Helianthus giganteus Tall sunflower 2 Helianthus grosseserratus Sawtooth sunflower 2 Liatris aspera Rough blazing star 1 Liatris spicate Marsh blazing star 2 Lobelia siphilitica Great blue lobelia 2 Monarda fistulosa Wild bergamot 4 Monarda punctata Horse mint 2 Penstemon digitalis Foxglove beard tongue 4 Penstemon hirsutus Hairy beard tongue 2 Physostegia virginiana Obedient plant 7 Pycnanthemum virginianum Common mountain mint 1 Ratibida pinnata Rudbeckia subtomentosa Sweet black-eyed Susan 2 Schizachyrium scoparium Little bluestem grass 4 Rudbeckia subtomentosa Sweet black-eyed Susan 2 Spartina pectinata Prairie cord grass 7 Tradescantia ohiensis Common spiderwort 4 Verbena hastata Blue vervain 3 Verbena hastata Winsserm 4 Veronicastrum virginicum Culver's root 1 Zizia aurea Golden Alexanders 4 Total PLS Ounces 704.50			PLS Oz
Andropogon gerardii Big bluestem grass 32 Aquilegia canadensis Wild columbine 0.5 Asclepias tuberosa Butterfly weed 3 Asclepias vericillata Whorled milkweed 1 Aster laevis Smooth blue aster 2 Aster movae-angliae New England aster 2 Aster umbelletus Flat-top aster 3 Avena sativa Seed oats 512 Cinna arundinacea Common wood reed 2 Coreopsis lanceolata Sand coreopsis 6 Coreopsis tripteris Tall coreopsis 2 Echinacea pallida Purple coneflower 8 Elymus canadensis Canada wild rye 8 Elymus virginicus Virginia wild rye 8 Elymus virginicus Virginia wild rye 8 Eupatorium maculatum Spotted joe-pye weed 1 Helenium autumnale Sneezeweed 2 Helianthus giganteus Tall sunflower 2 Helianthus grosseserratus Sawtooth sunflower 2 Liatris spicate Marsh blazing star 1 Liatris spicate Marsh blazing star 1 Lobelia siphilitica Great blue lobelia 3 Monarda punctata Horse mint 2 Panicum virgatum Switch grass 4 Penstemon digitalis Foxglove beard tongue 4 Penstemon hirsutus Hairy beard tongue 2 Physostegia virginiana Obedient plant 1 Pycnanthemum virginianum Common mountain mint 1 Ratibida pinnata Yellow coneflower 2 Rudbeck ia hirta Black-eyed Susan 2 Schizachyrium scoparium Little bluestem grass 4 Spartina pectinata Prairie cord grass 7 Rudbeck ia sibtomentosa Sweet black-eyed Susan 2 Schizachyrium scoparium Little bluestem grass 4 Spartina pectinata Prairie cord grass 7 Rudbeck ia hirta Black-eyed Susan 2 Schizachyrium scoparium Little bluestem grass 4 Spartina pectinata Prairie cord grass 7 Rudbeck ia hirta Black-eyed Susan 2 Schizachyrium scoparium Little bluestem grass 4 Spartina pectinata Prairie cord grass 7 Rudbeck ia hirta Black-eyed Susan 2 Schizachyrium scoparium Little bluestem grass 4 Spartina pectinata Prairie cord grass 7 Rudbeck ia hirta Black-eyed Susan 2 Schizachyrium scoparium Little bluestem grass 4 Schizachyrium scoparium Sissurica 8 Sissuri ironweed 2 Verbena hastata Wingstem 4 Verbenia alternifolia Wingstem 4 Verbenia alternifolia Wingstem 4 Verbenia alternifolia Wingstem 4 Verbenia alternifolia Wingstem 5 Verbenia hast	Scientific Name	Common Name	Per Acre
Aquilegia canadensis Asclepias tuberosa Asclepias vericillata Aster laevis Aster novae-angliae Aster novae-angliae Aster umbelletus Flat-top aster Avena sativa Common wood reed Coreopsis lanceolata Coreopsis tripteris Elymus canadensis Canada wild rye Elymus virginicus Flat-top aster Aster un sutumnale Helianthus giganteus Helianthus giganteus Helianthus girosseserratus Liatris aspera Liatris spicate Lobelia siphilitica Monarda punctata Hense mint Penstemon hirsutus Penstemon hirsutus Physostegia virginianu Ratibida pinnata Rudbeckia hita Black-eyed Susan Schizaerum virginicum Ausurica Russer Rush stata Rush stata Rush stata Rush stata Rush black-eyed Susan Schizaechyrium scoparium Little bluestem grass Schous pecina alternifolia Vernonia missurica Missouri ironweed Missouri	Agastache scrophulariaefolia	Purple giant hyssop	4
Asclepias tuberosa Asclepias vericillata Aster laevis Aster novae-angliae Aster umbellatus Aster laevis Aster umbellatus Aster laevis Aster umbellatus Aster umbellatus Aster laevis Aster umbellatus Aster laevis Aster laevi	Andropogon gerardii	Big bluestem grass	32
Asclepias vericiilata Aster laevis Aster novae-angliae Aster umbelletus Aster umbelletus Aster umbelletus Aster umbelletus Aster umbelletus Aster umbelletus Flat-top aster Avena sativa Cinna arundinacea Coreopsis lanceolata Coreopsis lanceolata Coreopsis tripteris Echinacea pallida Purple coneflower Elymus canadensis Canada wild rye Elymus virginicus Virginia wild rye Eupatorium maculatum Spotted joe-pye weed Helianthus giganteus Helianthus giganteus Helianthus grosseserratus Liatris aspera Liatris spicate Lobelia siphilitica Monarda fistulosa Monarda punctata Penstemon digitalis Penstemon hirsutus Hairy beard tongue Physostegia virginiana Pycnanthemum virginianum Ratibida pinnata Rudbeckia hiita Black-eyed Susan Solidago speciosa Showy gcldenrod Serota Pussouri ronweed Ausouri ronweed Veronicastrum virginicum Verbena hastata Verbena hastata Veronicastrum virginicum Culver's root Zizia aurea Wonderd Alexanders Veronicastrum virginicum Culver's root Culver's root Culver's root Culver's root Culver's root Culver's root Common spiderus Total PLS Ounces Total PLS Ounces	Aquilegia canadensis	Wild columbine	0.5
Aster laevis Smooth blue aster 2 Aster novae-angliae New England aster 2 Aster umbelletus Flat-top aster 3 Avena sativa Seed oats 512 Cinna arundinacea Common wood reed 2 Coreopsis lanceolata Sand coreopsis 6 Coreopsis tripteris Tall coreopsis 2 Echinacea pallida Purple coneflower 4 Elymus canadensis Canada wild rye 8 Elymus virginicus Virginia wild rye 8 Eupatorium maculatum Spotted joe-pye weed 1 Helenium autumnale Sneezeweed 2 Helianthus giganteus Tall sunflower 2 Helianthus grosseserratus Sawtooth sunflower 2 Liatris aspera Rough blazing star 1 Liatris spicate Marsh blazing star 2 Lobelia siphilitica Great blue lobelia 2 Monarda fistulosa Wild bergamot 4 Monarda punctata Horse mint 2 Penstemon digitalis Foxglove beard tongue 4 Penstemon hirsutus Hairy beard tongue 2 Physostegia virginiana Obedient plant 1 Pycnanthemum virginianum Common mountain mint 1 Ratibida pinnata Yellow coneflower 8 Rudbeckia subtomentosa Sweet black-eyed Susan 2 Schizachyrium scoparium Little bluestem grass 48 Solidago speciosa Showy gcldenrod 2 Spartina pectinata Prairie cord grass 7 Tradescantia ohiensis Common spiderwort 4 Verbena hastata Blue vervain 4 Verbena hastata Blue vervain 4 Veronicastrum virginicum Culver's root 1 Zizia aurea Golden Alexanders 4 Total PLS Ounces 704.50		Butterfly weed	3
Aster novae-angliae Aster umbelletus Flat-top aster Avena sativa Seed oats Cinna arundinacea Coreopsis lanceolata Coreopsis tripteris Elymus canadensis Elymus virginicus Fleliating spiritica Liatris spicate Lobelia siphilitica Monarda punctata Penstemon hirsutus Penstemon hirsutus Penstemon hirsutus Penstemon hirsutus Penstenon hirsutus Penstenon hirsutus Penstenon hirsutus Portina pectinata Rudbeck ia hita Rudbeck ia subtomentosa Spotten diese subtomentosa Scommon spiderwort Seed oats	Asclepias verticillata	Whorled milkweed	1
Aster umbelletus Avena sativa Seed oats Seed oats Sinna arundinacea Coreopsis lanceolata Coreopsis tripteris Coreopsis Coreopsis tripteris Coreopsis Coreops	Aster laevis	Smooth blue aster	2
Avena sativa Cinna arundinacea Coreopsis lanceolata Coreopsis tripteris Echinacea pallida Elymus canadensis Elymus virginicus Elymus virginicus Elymus virginicus Eliarihus giganteus Helianthus giosseserratus Liatris spicate Lobelia siphilitica Monarda fistuiosa Monarda punctata Monarda punctata Henstemon digitalis Penstemon hirsutus Hairy beard tongue Physostegia virginiana Pycnanthemum virginianum Rudbeckia subtomentosa Solidago speciosa Solidago speciosa Vernonia missurica Virginia wild rye Rall coreopsis Canada wild rye Rall coreopsiower Authory Authory Authory Capard blue lobelia Capard blue	Aster novae-angliae	New England aster	2
Cinna arundinacea Coreopsis lanceolata Coreopsis lanceolata Coreopsis tripteris Echinacea pallida Elymus canadensis Echinacea pallida Purple coneflower Elymus virginicus Virginia wild rye Eupatorium maculatum Helenium autumnale Helianthus giganteus Helianthus grosseserratus Liatris aspera Liatris spicate Lobelia siphilitica Monarda fistuiosa Monarda fistuiosa Monarda fistuiosa Monarda punctata Hensum virginianum Penstemon digitalis Penstemon digitalis Penstemon direatis Penstemon wirginianum Ratibida pinnata Rudbeckia sibtomentosa Schizachyrium scoparium Solidago speciosa Spartina pectinata Verbena hastata Veronicastrum virginicum Virginieum Veronicastrum virginicum Veronicastrum virginicum Veronicastrum virginicum Veronicastrum virginicum Veronicastrum virginicum Collever's root Veronicastrum virginicum Culver's root Common spidered Veronicastrum virginicum Culver's root Veronicastrum virginicum Veronicastrum virginicum Veronicastrum virginicum Veronicastrum virginicum Veronicastrum virginicum Veronicastrum virginic	Aster umbellatus	Flat-top aster	2
Coreopsis lanceolata Coreopsis tripteris Coreopsis tripteris Echinacea pallida Elymus canadensis Canada wild rye Elymus virginicus Virginia wild rye Eupatorium maculatum Spotted joe-pye weed Helenium autumnale Sneezeweed Helianthus giganteus Helianthus grosseserratus Liatris aspera Liatris spicate Lobelia siphilitica Great blue lobelia Monarda fistulosa Monarda punctata Horse mint Panicum virgatum Switch grass Penstemon digitalis Penstemon hirsutus Hairy beard tongue Physostegia virginiana Ratibida pinnata Rudbeckia hiita Ratibida poseciosa Showy gcldenrod Spartina pectinata Rolled Alexanders Veronicastrum virginicum Culver's root Zizia aurea Total PLS Ounces	Avena sativa	Seed oats	512
Coreopsis tripteris Echinacea pallida Elymus canadensis Canada wild rye Elymus virginicus Virginia wild rye Eupatorium maculatum Spotted joe-pye weed Helenium autumnale Helenium autumnale Helianthus giganteus Helianthus grosseserratus Liatris aspera Liatris spicate Lobelia siphilitica Monarda fistulosa Monarda punctata Hensemint Panicum virgatum Switch grass Penstemon digitalis Penstemon hirsutus Hairy beard tongue Physostegia virginiana Pycnanthemum virginianum Ratibida pinnata Rudbeckia subtomentosa Schizachyrium scoparium Solidago speciosa Showy gcldenrod Syeronicastrum virginicum Verbena hastata Verlous Culver's root Zizia aurea Total PLS Ounces	Cinna arundinacea	Common wood reed	2
Echinacea pallida Purple coneflower Elymus canadensis Canada wild rye 8 Elymus virginicus Virginia wild rye 8 Eupatorium maculatum Spotted joe-pye weed 1 Helenium autumnale Sneezeweed 2 Helianthus giganteus Tall sunflower 2 Helianthus grosseserratus Sawtooth sunflower 2 Liatris aspera Rough blazing star 1 Liatris spicate Marsh blazing star 2 Lobelia siphilitica Great blue lobelia 2 Monarda fistulosa Wild bergamot 4 Monarda punctata Horse mint 2 Panicum virgatum Switch grass 4 Penstemon digitalis Foxglove beard tongue 4 Penstemon hirsutus Hairy beard tongue 2 Physostegia virginiana Obedient plant 1 Pycnanthemum virginianum Common mountain mint 1 Ratibida pinnata Yellow coneflower 6 Rudbeck ia subtomentosa Sweet black-eyed Susan 2 Schizachyrium scoparium Little bluestem grass 4 Solidago speciosa Showy gcldenrod 2 Spartina pectinata Prairie cord grass 8 Tradescantia ohiensis Common spiderwort 4 Verbena hastata Blue vervain 3 Verbesina alternifolia Wingstem 4 Veronicastrum virginicum Culver's root 1 Zizia aurea Golden Alexanders 4 Total PLS Ounces 704.50	Coreopsis lanceolata	Sand coreopsis	6
Elymus canadensis Elymus virginicus Virginia wild rye Eupatorium maculatum Helenium autumnale Helianthus giganteus Helianthus grosseseratus Liatris aspera Liatris spicate Marsh blazing star Liatris spicate Monarda fistulosa Monarda punctata Horse mint Panicum virgatum Penstemon digitalis Penstemon hirsutus Hairy beard tongue Physostegia virginiana Pycnanthemum virginianum Ratibida pinnata Rudbeckia subtomentosa Schizachyrium scoparium Solidago speciosa Showy gcldenrod Syeronicastrum virginicum Verloenia missurica Virginia wild rye 8 Sawtooth sunflower 2 Autooth sunflower Autooth sunflower Autooth sunflower Autooth sunflower Autooth sunflower Autooth sunflower Back-eyed sund Common mountain mint Autooth sunflower Back-eyed Susan Combinate Prairie cord grass Common spiderwort Autooth sunflower Autooth sunflower Autooth sunflower Bule vervain Verbena hastata Vernonia missurica Veronicastrum virginicum Cullver's root Total PLS Ounces 704.50	Coreopsis tripteris	Tall coreopsis	2
Elymus canadensis Elymus virginicus Virginia wild rye Eupatorium maculatum Helenium autumnale Helianthus giganteus Helianthus grosseseratus Liatris aspera Liatris spicate Marsh blazing star Liatris spicate Monarda fistulosa Monarda punctata Horse mint Panicum virgatum Penstemon digitalis Penstemon hirsutus Hairy beard tongue Physostegia virginiana Pycnanthemum virginianum Ratibida pinnata Rudbeckia subtomentosa Schizachyrium scoparium Solidago speciosa Showy gcldenrod Syeronicastrum virginicum Verloenia missurica Virginia wild rye 8 Sawtooth sunflower 2 Autooth sunflower Autooth sunflower Autooth sunflower Autooth sunflower Autooth sunflower Autooth sunflower Back-eyed sund Common mountain mint Autooth sunflower Back-eyed Susan Combinate Prairie cord grass Common spiderwort Autooth sunflower Autooth sunflower Autooth sunflower Bule vervain Verbena hastata Vernonia missurica Veronicastrum virginicum Cullver's root Total PLS Ounces 704.50	Echinacea pallida	Purple coneflower	4
Eupatorium rraculatum Helenium autumnale Helenium autumnale Helianthus giganteus Helianthus grosseserratus Liatris aspera Liatris spicate Marsh blazing star Lobelia siphilitica Monarda fistuiosa Monarda punctata Horse mint Panicum virgatum Switch grass Penstemon digitalis Penstemon hirsutus Hairy beard tongue Physostegia virginiana Pycnanthemum virginianum Ratibida pinnata Rudbeckia hitta Black-eyed Susan Rudbeckia subtomentosa Schizachyrium scoparium Sweet black-eyed Susan Prairie cord grass Rudescantia ohiensis Common spiderwort Verbena hastata Verloures Missouri ironweed Veronicastrum virginicum Zizia aurea Posattonoth sutus Spotted joe-pye weed 2 deel specy eed 2 automflower Automflo		· ·	8
Helenium autumnale Helianthus giganteus Helianthus grosseserratus Liatris aspera Liatris spicate Marsh blazing star Lobelia siphilitica Monarda fistulosa Monarda punctata Panicum virgatum Penstemon digitalis Penstemon hirsutus Hairy beard tongue Physostegia virginiana Pycnanthemum virginianum Ratibida pinnata Rudbeckia hiita Rudbeckia subtomentosa Schizachyrium scoparium Switch grass Penstemon digitalis Foxglove beard tongue 4 Hairy beard tongue 2 2 2 2 2 2 2 2 2 2 2 2 2	Elymus virginicus	Virginia wild rye	8
Helenium autumnale Helianthus giganteus Helianthus grosseserratus Liatris aspera Liatris spicate Marsh blazing star Lobelia siphilitica Monarda fistulosa Monarda punctata Panicum virgatum Penstemon digitalis Penstemon hirsutus Hairy beard tongue Physostegia virginiana Pycnanthemum virginianum Ratibida pinnata Rudbeckia hiita Rudbeckia subtomentosa Schizachyrium scoparium Switch grass Penstemon digitalis Foxglove beard tongue 4 Hairy beard tongue 2 2 2 2 2 2 2 2 2 2 2 2 2	Eupatorium maculatum	Spotted joe-pye weed	1
Helianthus grosseserratus Sawtooth sunflower Liatris aspera Rough blazing star Liatris spicate Marsh blazing star Lobelia siphilitica Great blue lobelia Monarda fistulosa Wild bergamot Monarda punctata Horse mint Panicum virgatum Switch grass Penstemon digitalis Foxglove beard tongue Penstemon hirsutus Hairy beard tongue Penstemon hirsutus Common mountain mint 1 Tatibida pinnata Yellow coneflower Black-eyed Susan Rudbeck ia hiita Black-eyed Susan Rudbeck ia subtomentosa Sweet black-eyed Susan Schizachyrium scoparium Little bluestem grass Solidago speciosa Showy gcldenrod Spartina pectinata Prairie cord grass Tradescantia ohiensis Common spide	Helenium autumnale		2
Helianthus grosseserratus Sawtooth sunflower Liatris aspera Rough blazing star Liatris spicate Marsh blazing star Lobelia siphilitica Great blue lobelia Monarda fistulosa Wild bergamot Monarda punctata Horse mint Panicum virgatum Switch grass Penstemon digitalis Foxglove beard tongue Penstemon hirsutus Hairy beard tongue Penstemon hirsutus Common mountain mint 1 Tatibida pinnata Yellow coneflower Black-eyed Susan Rudbeck ia hiita Black-eyed Susan Rudbeck ia subtomentosa Sweet black-eyed Susan Schizachyrium scoparium Little bluestem grass Solidago speciosa Showy gcldenrod Spartina pectinata Prairie cord grass Tradescantia ohiensis Common spide	Helianthus giganteus	Tall sunflower	2
Liatris aspera Rough blazing star Liatris spicate Marsh blazing star Lobelia siphilitica Great blue lobelia Monarda fistuiosa Wild bergamot Monarda punctata Horse mint Panicum virgatum Switch grass Penstemon digitalis Foxglove beard tongue Penstemon hirsutus Hairy beard tongue Physostegia virginiana Obedient plant Pycnanthemum virginianum Common mountain mint Ratibida pinnata Yellow coneflower Rudbeck ia hitta Black-eyed Susan Rudbeck ia subtomentosa Sweet black-eyed Susan Schizachyrium scoparium Little bluestem grass Solidago speciosa Showy goldenrod Spartina pectinata Prairie cord grass Tradescantia ohiensis Common spiderwort Verbena hastata Blue vervain Verbesina alternifolia Wingstem Veronicastrum virginicum Zizia aurea Rodel Alexanders Total PLS Ounces 704.50		Sawtooth sunflower	2
Liatris spicate Lobelia siphilitica Great blue lobelia Monarda fistuiosa Monarda punctata Horse mint Panicum virgatum Switch grass Penstemon digitalis Penstemon hirsutus Hairy beard tongue Physostegia virginiana Obedient plant 1 Pycnanthemum virginianum Ratibida pinnata Pudbeckia hitta Black-eyed Susan Rudbeckia subtomentosa Schizachyrium scoparium Little bluestem grass Solidago speciosa Showy gcldenrod Spartina pectinata Prairie cord grass Tradescantia ohiensis Vernonia missurica Veronicastrum virginicum Little bluestem Godden Alexanders Golden Alexanders Total PLS Ounces 704.50	<u> </u>	Rough blazing star	1
Lobelia siphilitica Great blue lobelia 2 Monarda fistuiosa Wild bergamot 4 Monarda punctata Horse mint 2 Panicum virgatum Switch grass 4 Penstemon digitalis Foxglove beard tongue 4 Penstemon hirsutus Hairy beard tongue 2 Physostegia virginiana Obedient plant 1 Pycnanthemum virginianum Common mountain mint 1 Ratibida pinnata Yellow coneflower 6 Rudbeck ia hirta Black-eyed Susan 2 Rudbeck ia subtomentosa Sweet black-eyed Susan 2 Schizachyrium scoparium Little bluestem grass 48 Solidago speciosa Showy gcldenrod 2 Spartina pectinata Prairie cord grass 8 Tradescantia ohiensis Common spiderwort 44 Verbena hastata Blue vervain 33 Verbesina alternifolia Wingstem 44 Veronicastrum virginicum Culver's root 1 Zizia aurea Golden Alexanders 704.50			2
Monarda punctata Panicum virgatum Switch grass 4 Penstemon digitalis Penstemon hirsutus Hairy beard tongue Physostegia virginiana Obedient plant Pycnanthemum virginianum Common mountain mint Ratibida pinnata Pyellow coneflower Rudbeck ia hirta Black-eyed Susan Rudbeck ia subtomentosa Sweet black-eyed Susan Schizachyrium scoparium Little bluestem grass Solidago speciosa Showy goldenrod Spartina pectinata Prairie cord grass Tradescantia ohiensis Common spiderwort Verbena hastata Blue vervain Verbesina alternifolia Vernonia missurica Missouri ironweed Veronicastrum virginicum Zizia aurea Vested Switch grass Missouri ironweed Veronicastrum virginicum Zizia aurea Augusta de Horse mint 2 Zwitch grass 4 Vellow coneflower Black-eyed Susan 2 Sweet black-eyed Susan 2 Sweet black-eyed Susan 2 Common grass 3 Schizachyrium scoparium Little bluestem grass 4 Solidago speciosa Showy goldenrod 2 Spartina pectinata Prairie cord grass 3 Sumanus 4 Verbena hastata Blue vervain 3 Verbesina alternifolia Vingstem 4 Veronicastrum virginicum Cullver's root 1 Total PLS Ounces 704.50	Lobelia siphilitica		2
Monarda punctata Horse mint 2 Panicum virgatum Switch grass 4 Penstemon digitalis Foxglove beard tongue 2 Physostegia virginiana Obedient plant 1 Pycnanthemum virginianum Common mountain mint 1 Ratibida pinnata Yellow coneflower 6 Rudbeck ia hitta Black-eyed Susan 2 Rudbeck ia subtomentosa Sweet black-eyed Susan 2 Schizachyrium scoparium Little bluestem grass 48 Solidago speciosa Showy gcldenrod 2 Spartina pectinata Prairie cord grass 8 Tradescantia ohiensis Common spiderwort 4 Verbena hastata Blue vervain 3 Verbesina alternifolia Wingstem 4 Veronicastrum virginicum Culver's root 1 Zizia aurea Golden Alexanders 704.50	Monarda fistulosa	Wild bergamot	4
Panicum virgatum Switch grass 4 Penstemon digitalis Foxglove beard tongue 4 Penstemon hirsutus Hairy beard tongue 2 Physostegia virginiana Obedient plant 1 Pycnanthemum virginianum Common mountain mint 1 Ratibida pinnata Yellow coneflower 6 Rudbeckia hiita Black-eyed Susan 2 Rudbeckia subtomentosa Sweet black-eyed Susan 2 Schizachyrium scoparium Little bluestem grass 48 Solidago speciosa Showy gcldenrod 2 Spartina pectinata Prairie cord grass 8 Tradescantia ohiensis Common spiderwort 4 Verbena hastata Blue vervain 3 Verbesina alternifolia Wingstem 4 Vernonia missurica Missouri ironweed 2 Veronicastrum virginicum Culver's root 1 Zizia aurea Golden Alexanders 704.50	Monarda punctata		2
Penstemon digitalis Penstemon hirsutus Hairy beard tongue Physostegia virginiana Obedient plant Pycnanthemum virginianum Common mountain mint Ratibida pinnata Pudbeckia hiita Rudbeckia subtomentosa Schizachyrium scoparium Solidago speciosa Showy gcldenrod Spartina pectinata Prairie cord grass Tradescantia ohiensis Verbena hastata Verlouver's root Veronicastrum virginicum Zizia aurea Podedient dongue Alary beard tongue Alary bea	'	Switch grass	4
Penstemon hirsutus Hairy beard tongue 2 Physostegia virginiana Obedient plant 1 Pycnanthemum virginianum Common mountain mint 1 Ratibida pinnata Yellow coneflower 6 Rudbeck ia hirta Black-eyed Susan 2 Rudbeck ia subtomentosa Sweet black-eyed Susan 2 Schizachyrium scoparium Little bluestem grass 48 Solidago speciosa Showy gcldenrod 2 Spartina pectinata Prairie cord grass 8 Tradescantia ohiensis Common spiderwort 4 Verbena hastata Blue vervain 3 Verbesina alternifolia Wingstem 4 Veronicastrum virginicum Culver's root 1 Zizia aurea Golden Alexanders 704.50			4
Physostegia virginiana Obedient plant 1 Pycnanthemum virginianum Common mountain mint 1 Ratibida pinnata Yellow coneflower 6 Rudbeckia hiita Black-eyed Susan 2 Rudbeckia subtomentosa Sweet black-eyed Susan 2 Schizachyrium scoparium Little bluestem grass 48 Solidago speciosa Showy gcldenrod 2 Spartina pectinata Prairie cord grass 8 Tradescantia ohiensis Common spiderwort 4 Verbena hastata Blue vervain 3 Verbesina alternifolia Wingstem 4 Vernonia missurica Missouri ironweed 2 Veronicastrum virginicum Culver's root 1 Zizia aurea Golden Alexanders 4 Total PLS Ounces 704.50	•		2
Pycnanthemum virginianum Common mountain mint 1 Ratibida pinnata Yellow coneflower 6 Rudbeckia hirta Black-eyed Susan 2 Rudbeckia subtomentosa Sweet black-eyed Susan 2 Schizachyrium scoparium Little bluestem grass 48 Solidago speciosa Showy gcldenrod 2 Spartina pectinata Prairie cord grass 8 Tradescantia ohiensis Common spiderwort 4 Verbena hastata Blue vervain 3 Verbesina alternifolia Wingstem 4 Vernonia missurica Missouri ironweed 2 Veronicastrum virginicum Culver's root 1 Zizia aurea Golden Alexanders 4 Total PLS Ounces 704.50			1
Ratibida pinnata Y ellow coneflower Rudbeck ia hirta Black-eyed Susan Rudbeck ia subtomentosa Sweet black-eyed Susan Schizachyrium scoparium Little bluestem grass Solidago speciosa Showy gcldenrod Spartina pectinata Prairie cord grass Tradescantia ohiensis Common spiderwort Verbena hastata Blue vervain Verbesina alternifolia Wingstem Vernonia missurica Missouri ironweed Veronicastrum virginicum Culver's root Zizia aurea Golden Alexanders Total PLS Ounces 704.50	, ,		1
Rudbeck ia hirta Black-eyed Susan Rudbeck ia subtomentosa Sweet black-eyed Susan Schizachyrium scoparium Little bluestem grass Solidago speciosa Showy gcldenrod Spartina pectinata Prairie cord grass Tradescantia ohiensis Common spiderwort Verbena hastata Blue vervain Verbesina alternifolia Wingstem Vernonia missurica Missouri ironweed Veronicastrum virginicum Culver's root Zizia aurea Golden Alexanders Total PLS Ounces 704.50			6
Rudbeck ia subtomentosa Sweet black-eyed Susan 2 Schizachyrium scoparium Little bluestem grass 48 Solidago speciosa Showy gcldenrod 2 Spartina pectinata Prairie cord grass 8 Tradescantia ohiensis Common spiderwort 4 Verbena hastata Blue vervain 3 Verbesina alternifolia Wingstem 4 Vernonia missurica Missouri ironweed 2 Veronicastrum virginicum Culver's root 1 Zizia aurea Golden Alexanders 704.50	1-1		2
Schizachyrium scoparium Little bluestem grass 48 Solidago speciosa Showy gcldenrod 2 Spartina pectinata Prairie cord grass 8 Tradescantia ohiensis Common spiderwort 4 Verbena hastata Blue vervain Verbesina alternifolia Vernonia missurica Wingstem Veronicastrum virginicum Zizia aurea Little bluestem grass 48 8 48 48 49 Prairie cord grass 8 8 8 Werden spiderwort 4 4 Verbena hastata Wingstem 4 Vernonia missurica Missouri ironweed 2 Culver's root 1 Zollver's root 2 Total PLS Ounces 704.50		•	2
Solidago speciosa Showy gcldenrod 2 Spartina pectinata Prairie cord grass 8 Tradescantia ohiensis Common spiderwort 4 Verbena hastata Blue vervain 3 Verbesina alternifolia Wingstem 4 Vernonia missurica Missouri ironweed 2 Veronicastrum virginicum Culver's root 1 Zizia aurea Golden Alexanders 704.50		•	48
Spartina pectinata Prairie cord grass Tradescantia ohiensis Common spiderwort Verbena hastata Blue vervain Verbesina alternifolia Wingstem Vernonia missurica Missouri ironweed Veronicastrum virginicum Culver's root Zizia aurea Golden Alexanders Total PLS Ounces 704.50	,		2
Tradescantia ohiensis Verbena hastata Verbesina alternifolia Vernonia missurica Veronicastrum virginicum Zizia aurea Common spiderwort 4 Wingstem 4 Wingstem Culver's root Golden Alexanders 4 Total PLS Ounces 704.50			8
Verbena hastata Blue vervain Verbesina alternifolia Wingstem Vernonia missurica Missouri ironweed Veronicastrum virginicum Culver's root Zizia aurea Golden Alexanders Total PLS Ounces 704.50	<u> </u>		4
Verbesina alternifolia Wingstem Vernonia missurica Missouri ironweed Veronicastrum virginicum Culver's root Zizia aurea Golden Alexanders Total PLS Ounces 704.50		<u>'</u>	3
Vernonia missurica Missouri ironweed Veronicastrum virginicum Culver's root Zizia aurea Golden Alexanders Total PLS Ounces 704.50			4
Veronicastrum virginicum Culver's root 1 Zizia aurea Golden Alexanders 4 Total PLS Ounces 704.50			2
Zizia aurea Golden Alexanders 4 Total PLS Ounces 704.50			1
Total PLS Ounces 704.50			1
	LIZIU GUICA		704 50
			44.03

NATIVE PLANT LIST (EMERGENT)

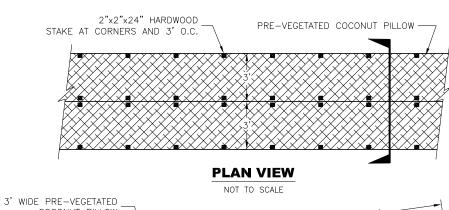
Scientific Name	Common Name	Quantity (EA)	Scientific Name	Common Name	Quantity (EA)
Iris virginica shrevii	Blue flag iris	128	Pinus strobus	White Pine	13
Nuphar advena	Spatterdock	1000	Acer rubrum	Red Maple	13
Peltandra virginica	Arrow arum	1000	Quercus palustris	Pin Oak	13
Pontederia cordata	Pickerel weed	1000	,		
Sagittaria latifolia	Arrowhead	128	NOTE: TREES SHALL E	BE 3" DBH UNLESS OTHE	RWISE NOTED.
Scirpus acutus	Hardstem bulrush	1500			
Vallisneria americana	Wild celery	2500			

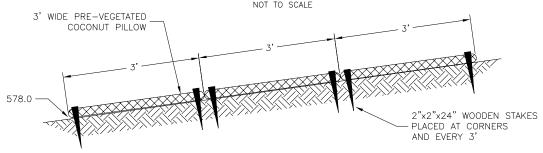
NATIVE PLANT LIST (BioD-BLOCK SYSYEM) ABOVE 581.0'

Scientific Name	<u>Common Name</u>	<u>Quantity (E</u>
Schizachyrium scoparium	Little bluestem	1,744
Panicum virgatum	Switch arass	1,744

NATIVE PLANT LIST (BioD-BLOCK SYSYEM) BELOW 581.0'

<u>Scientific Name</u>	<u>Common Name</u>	<u>Quantity (E</u>
Carex vulpinoidea Iris virginica shrevii Asclepias incarnata Juncus effusus	Brown fox sedge Blue flag iris Swamp milkweed Soft rush	872 872 872 872
ouncus chasas	3010 14311	0,2





SECTION NOT TO SCALE

PRE-VEGETATED COCONUT PILLOW INSTALLATION

NOT TO SCALE

NOTE:

- 1. COCONUT PILLOWS SHALL BE PRE-VEGETATED WITH NATIVE PLANTS 1' O.C. WITH: SOFTSTEM BULRUSH (SCIRPUS VALIDUS)
 HARDSTEM BULRUSH (SCIRPUS ACUTUS)
 CHARMRAKER'S RUSH (SCIRPUS PUNGENS)
 BUR REED (SPARGANIUM EURYCARPUM)
- 2. COCONUT PILLOWS SHALL BE PRE—PLANTED AT LEAST 4 WEEKS PRIOR TO INSTALLATION.
- 3. COCONUT PILLOWS SHALL BE APPROXIMATELY 2"x3'x20' AND CONSTRUCTED OF 100% COCONUT FIBER MATERIAL



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SHEET NO.

TREE PLANTING DETAIL

ROOT FLARE OF TREE VISIBLE

REMOVE ENTIRE ROOT BAG OR IF B&B, REMOVE TOP THIRD OF BURLAP, ROPE, WIRE FROM ROOT BALL

AFTER PLANTING

UNAMENDED BACKFILL EXISTING SUBGRADE

NOT TO SCALE

NATIVE TREE LIST

West Michigan Shoreline Regional Development Commission and the Muskegon Lake Watershed Partnership Amoco / Ruddiman Properties Plant Lists and Specifications DRAWN BY: DESIGNED BY: 09/26/2013 JOB NO:



RAB

BM

West Olive, Michigan 49460 616-847-1680